CURRICULUM VITAE

Clarence W. de Silva, Ph.D., P.Eng.
Fellow ASME, Fellow IEEE, Fellow CAE, Fellow RSC
Professor of Mechanical Engineering
Department of Mechanical Engineering
The University of British Columbia
6250 Applied Science Lane
Vancouver, B.C., Canada V6T 1Z4

Tel: (604) 822-6291; Fax: (604) 822-2403; e-mail: desilva@mech.ubc.ca
Web site: http://ial.mech.ubc.ca/

PUBLICATIONS: Listed at the End.

RESEARCH GRANTS: Over $5 million during the past 10 years as Principal Investigator.

CITIZENSHIP: U.S.A.

EDUCATION

Ph.D.: Massachusetts Institute of Technology (1978) *(Subject Area:* Dynamics and Control of Automated Guided Vehicle Systems, GPA = 4.0/4.0)

Ph.D.: University of Cambridge, England (1998) (Dynamic Systems and Control, Division of Information Engineering)

M.A.Sc.: University of Toronto (1975) (Multivariable Control of Flexible Systems, GPA = 4.0/4.0)

B.Sc Eng. (Hon 1): University of Ceylon (1971) (Mechanical Engineering, 1st Class Honors, Ranked first in the entire School of Engineering, winning the University Prize)

TEACHING AND RESEARCH POSITIONS

- Professor of Mechanical Engineering; Director, Industrial Automation Laboratory - University of British Columbia (1988-present); Senior Canada Research Chair in Mechatronics & Industrial Automation (2008-2016); NSERC-BC Packers Chair Professor (1988-1998); Departmental Advisor on Graduate Studies (1998-2000); Assistant Head on Graduate Matters (1999-2000); Director, Applied Science Research Centre: UBC (2004-present).
- Mobil Endowed Chair Professor, Department of Electrical and Computer Engineering: National University of Singapore (2000).
- Senior Fulbright Fellow & Visiting Professor: University of Cambridge, U.K. (1987 - 1988).
- Asst. and Assoc. Professor; Founding Member, Robotics Institute; Director, Computer-Based Automation Laboratory: Carnegie Mellon University (1978-1987).

SPECIAL PROFESSIONAL QUALIFICATIONS

- Registered Professional Engineer, B.C., Canada (1990-present).
- IEEE Certificate of Technical Achievement: Transducers and Sensors, 1989.

- Certificate on Vibration Instrumentation, Bruel & Kjaer, Denmark, 1982.
- IEEE Certificate of Technical Achievement: Microcomputer Technology, 1979.

PROFESSIONAL HONORS AND FELLOWSHIPS
- Peter Wall Scholar, University of British Columbia, 2014-15.
- Distinguished Visiting Fellow, Royal Academy of Engineering, U.K. (2013).
- D.Sc., *honoris causa*, Open University of Sri Lanka (2010).
- Fellow, Royal Society of Canada (Highest professional honor in Canada (2008-present).
- D.Eng., *honoris causa*, University of Waterloo, Canada (2008).
- Erskine Fellow, University of Canterbury, Christchurch, New Zealand (2008)
- Fellow, Canadian Academy of Engineering (2006-present).
- IEEE Third Millennium Medal (2000).
- Fellow, Institute of Electrical and Electronics Engineers (1998-present).
- Fellow, American Society of Mechanical Engineers (1994-present).
- Killam Fellow (1994/95).
- Fellow of the Advanced Systems Institute of B.C. (1992 - 1994).
- Fulbright Senior Fellow at Cambridge University, U.K. (1987-1988).
- NASA-ASEE Fellow at Langley Research Center (Summer 1987).
- NASA-ASEE Fellow at Lewis Research Center (Summer 1987).
- IEEE Distinguished Lecturer (1986).
- Lilly Fellow at Carnegie Mellon University (1979-1980).

OVERSEAS EXPERIENCE
- Professorial Fellow, University of Melbourne, Australia (2014).
- Honorary Professor, Xiamen University, China (2010-present).
- Honorary Chair Professor, National Taiwan University of Science and Technology (2007-present).
- Mobil Endowed Chair Professor, Department of Electrical & Computer Engineering, National University of Singapore (2000).
- Distinguished Visiting Professor, Department of Mechanical & Production Engineering, National University of Singapore (1999).
- Honorary Professor, Open University of Sri Lanka (1998-2004).
- Honorary Professor, Sri Lanka Institute of Information Technology (2006-present).
- Consultative Professor, Huazhong University of Science and Technology, China (1994-2000).
- Conducted short courses in USA, Canada, Japan, Spain, Mexico, Thailand, Malaysia, and Singapore.
- Given invited lectures in USA, Canada, China, U.K., France, Germany, Mexico, Poland, Hungary, China, Japan, Hong Kong, Thailand, Malaysia, Singapore, Taiwan, Australia, New Zealand, Chile, Argentina, Brazil, Venezuela, Puerto Rico, and Sri Lanka.
- Traveled in about 30 countries.

INDUSTRIAL EXPERIENCE
- Research Fellow, *NASA Lewis and Langley Research Centers* (Summer 1987)

- Resident Consultant for *IBM Corp., Zonic Corp.,* and *Westinghouse Electric Corp.* (Summers of 1979, 80, 83-86)
- Technical Training in Instrumentation at *Bruel & Kjaer,* Denmark (1982)
- Asst. Works Engineer, *Richard Pieris & Co. Ltd. of Ceylon* (1971-73).

CURRICULUM DEVELOPMENT
- Developed the undergraduate engineering curriculum, Sri Lanka Institute of Information Technology (2011-2012)
- Developed new material for the Mechatronics program, University of British Columbia (2006-2008)
- Developed and assessed the M.Sc. Program in Mechatronics, National University of Singapore (2000-2005)
- Developed the Diploma Program; the B.Tech. Program; and the course material in Mechatronics, Open University of Sri Lanka (1998-2004).

RESEARCH EXPERTISE
- Mechatronics (Integrated Design, Multi-domain Modeling, System Integration)
- Process Automation (Machine Vision, Process Control, Industrial Applications)
- Robotics (Homecare Robotics, Rescue Robotics, Cooperative Robotics, Modeling, Control, Design and Development, Space Robotics, Innovative Robotic Hands)
- Telemedicine
- Controls (Intelligent Control; Networked Control Systems)
- Machine Monitoring and Fault Diagnosis
- Resistance welding (spot welding) and robotic arc welding
- Instrumentation (Sensors, Transducers, Actuators, Signal Conditioning)
- Experimental Modal Analysis (Hardware, Software, and Techniques)
- Dynamic Testing and Product Qualification.

GRADUATE COURSES TAUGHT
* Graduate Advisor, Department Mechanical Engineering, University of BC (1998-2000)
* Intelligent Control (Developed by C.W. de Silva)
* Mechatronics (Developed by C.W. de Silva)
* Modeling of Dynamic Systems (Developed by C.W. de Silva)
* Control Sensors and Actuators (Developed by C.W. de Silva)
* Control System Instrumentation (Developed by C.W. de Silva)
* Foundations in Control Engineering
* Modern Control Engineering
* Modal Analysis and Testing (Developed by C.W. de Silva)
* My textbooks have been used by professors at our university and elsewhere to develop material for new courses and for teaching existing and new courses.

UNDERGRADUATE COURSES TAUGHT
* Directed the Computer-Aided Automation Program (1991-92)
* Dynamic System Modeling (Developed by C.W. de Silva)
* Feedback Control Systems

* Instrumentation and Design of Control Systems (Developed by C.W. de Silva)
* Dynamics of Physical Systems
* Statics and Dynamics
* Machine Design
* Undergraduate Project
* Mechanical Vibrations
* Mechanics of Materials
* My textbooks have been used by professors at our university and elsewhere to develop material for new courses and for teaching existing and new courses.

SHORT COURSES TAUGHT

- Workshop on Mechatronics and Applications, University of Hertfordshire, Hatfield, UK, June 2013.
- Tutorial on MECHATRONICS, *IEEE International Conference on Industrial Technology* (ICIT 2010), Vina del Mar, Chile, March 2010.
- Short Course on Mechatronic Systems, Shenzhen Institute of Advanced Technology, Shenzhen, China, August 2007.
- Short Course on MECHATRONICS—Modeling, Component Interconnection, Sensors, Actuators, Control, and Integrated Design, *IEEE International Symposium on Industrial Electronics* (ISIE2007), Vigo, Spain, June 2007.
- Workshop on Soft Computing for Intelligent Mechatronics, *International Conference on Information and Automation*, Colombo, Sri Lanka, December 2006.
- Workshop on Mechatronics, *International Conference on Information and Automation*, Colombo, Sri Lanka, December 2006.
- Workshop on Soft Computing for Intelligent Mechatronics, *International Symposium on Robotics and Automation*, Hidalgo, Mexico, August 2006.
- Workshop on Mechatronics—Modeling, Component Interconnection, Sensors, Actuators, Control, and Integrated Design, *IEEE Control Systems Chapter*, Singapore, May 2005.
- Workshop on Mechatronics—An Integrated Approach, *International Embedded and Hybrid Systems Conference*, Singapore, May 2005.
- Workshop on Computational Intelligence for Robotics and Intelligent Mechatronics, *Singapore Robotics Games*, May 2005.
- Technology Infusion Programme—A Systematic Approach to the Design of Ultra-Precision Machines, *GINTIC Institute of Manufacturing Technology*, Singapore, November 2000.
- Industrial Vibration—Analysis, Measurement, Testing, and Control, *IEEE Control Systems Chapter*, Singapore, October 2000.
- Modern Control Engineering, *Graduate Diploma in Defence Technology and Systems*, National University of Singapore, October 2000.
- Intelligent Control, Saltillo, Mexico, December 1998.
- Tools of Soft Computing as Applied to the Field of Automation and Control, *IROS Conference*, Victoria, BC, October 1998.
- Control with Fuzzy Logic, *IASTED Conference*, Halifax, Nova Scotia, June 1998.
- Fuzzy Control and Applications, *IFAC Symposium*, Kuala Lumpur, Malaysia, September 1997.

- Intelligent Motion Control; In collaboration with *GALIL Motion Control, Inc.*, USA; Vancouver, B.C., May 1994.
- Fuzzy Logic Control and Applications, National University of Singapore, *Applied Research Corp.*, July 1993.
- Sensors and Actuators for Robot Control, *Ritsumeikan University*, Kyoto, Japan, June 1993.
- 2nd B.C. Workshop on Intelligent Control and Applications, Burnaby, B.C., July 1992.
- Fuzzy Logic Control - Theory and Applications, National University of Singapore, *Applied Research Corp.*, July-August 1991.
- Training Course on Industrial Robotics, *Asian Institute of Technology*, Bangkok, Thailand, July 1991.
- Dynamics and Control in CAD/CAM and Robotics, *Florida Atlantic University*, Boca Raton, FL, December 1986.
- Product Testing and Signal Processing, *IBM Corp*, Boca Raton, FL, July-August 1985.
- Industrial Vibration Analysis, Measurement, and Control, *Bruel & Kjaer and University of Petroleum and Minerals*, October-November 1981.
- Modern Developments in Engineering Dynamics, *Carnegie Mellon University*, Pittsburgh, PA, February-May, 1979.

MACHINERY DEVELOPED FOR INDUSTRY
Led the development of the following industrial prototypes:
- Controller for Industrial Routing Machine (PRECIX Advanced Cutting Technologies, Ltd., 1996-2005)
- Multi-modular Deployable Manipulator System—MDMS (1996-present)
- Automated Machine for Inspecting Canned Food Products (NSERC Chair; in collaboration with Neptune Dynamics, Ltd., 1996-2004)
- Automated Machine for Grading Herring Roe (NSERC Chair; in collaboration with B.C. Packers, Ltd. and Ryco, Inc., 1993-2000)
- Automated Machine for Cutting Salmon (NSERC Chair; in collaboration with B.C. Packers, Ltd. and North American Testing, 1992-2005)
- Automated Machine for Spray-Marking of Live Fish with Application in Fisheries Management (In collaboration with B.C. Hydro and B.C. Ministry of Environment; 1991-1995)
- Laboratory Prototype for Fish Processing Research (NSERC Chair; 1989-1995)
- Continuously Variable Transmission (In collaboration with Transco Tool and Equipment, Ltd., Enterprise Developments, Inc., 1991-1992).
- Finishing Machine for Rubber Parts (Richard Pieris & Co. Ltd., 1972).

RESEARCH COLLABORATIONS
- University of British Columbia: Prof. V.J. Modi, Prof. E.A. Croft, Prof. F. Sassani, and Prof. M. Gadala, Dept. of Mechanical Engineering; Prof. V. Leung, Prof. P.D. Lawrence, and Prof. W. Dunford, Department of Electrical and Computer Engineering.
- Simon Fraser University: Prof. W.A. Gruver
- Memorial University of Newfoundland: Prof. R.G. Gosine
- National University of Singapore: Prof. A.N. Poo, Prof. T.H. Lee, Prof. K.K. Tan, and Prof. M. Ang

- National Research Council of Canada: Dr. G. Wang, Dr. J. Wu, Dr. R. Rahbari
- Pennsylvania State University, USA: Prof. S. Phoha, Department of Electrical and Computer Engineering; Prof. A. Ray, Department of Mechanical Engineering
- National Taiwan University of Science and Technology: Prof. R.M.F. Lee
- Sri Lanka Institute of Information Technology: Prof. L.B. Gamage
- Xiamen University, China: Prof. Maoqing Li

AWARDS AND PRIZES

- Best Student Paper Award for the paper: Abid, A., Khan, M.T., and de Silva, C.W., "Fault Detection in Mobile Robots Using Sensor Fusion," *Proceedings of the 10th IEEE International Conference on Computer Science & Education,* Cambridge, England, July 2015.
- Best Student Paper Award for the paper: Zhang, Y., de Silva, C.W., Su, D., and Xue, Y., "Autonomous Robot Navigation with Self-learning for Collision Avoidance with Randomly Moving Obstacles," *Proceedings of the 9th IEEE International Conference on Computer Science & Education,* Vancouver, Canada, August 2014.
- Student Design Competition Winner, for the paper: Er, P.V., Tan, K. K., Lim, H.Y., Narayanan, A.S., and de Silva, C.W., "Development of Hearing Aids With Frugal Objectivity," *Proceedings of the IASTED International Conference on Engineering and Applied Science*, Colombo, Sri Lanka, pp. 370-377, December 2012
- The Technical Award, Digital Signal Processing Creative Design Contest, Tinan, Taiwan, November 2009.
- Henry M. Paynter Outstanding Investigator Award, ASME Dynamic Systems and Control Division (2006).
- Best Student Paper Award for the paper: Cao, Y. and de Silva, C.W., "Adaptive Control of a Manipulator with Flexible Joints Using Neural Networks", *Proceedings of the Tenth IEEE International Conference on Mechatronics and Machine Vision in Practice,* Perth, Australia, Paper No. 035 (CD-ROM), December 2003.
- Lifetime Achievement Award, World Automation Congress (2002).
- Killam Research Prize, University of British Columbia (2000).
- IEEE Canada Outstanding Engineering Educator Award (2000).
- IEEE Region VII Merit Award Medal (2000).
- President of the Japan Society for Aeronautical and Space Sciences Award for the Best Paper and Excellence in Presentation: Cao, Y., Modi, V.J., de Silva, C.W., and Misra, A.K., "A New Class of Multimodule Deployable Manipulators: Analyses and Experiments," *Proceedings of the 22nd International Symposium on Space Technology and Science*, Morioka, Japan, Sanbi Insatsu Company Ltd. Publisher, Tokyo, Vol. 2, pp. 2197-2204, May-June 2000.
- Yasundo Takahashi Education Award, ASME Dynamic Systems and Control Division, (1999).
- Outstanding Chapter Chair Award, IEEE Vancouver Section (1999).
- Outstanding Chapter Award, IEEE Control Systems Society (1998).
- Outstanding Large Chapter Award, IEEE Industry Applications Society (1997).
- Meritorious Achievement Award, Association of Professional Engineers and Geoscientists of BC (1996).

- Outstanding Contribution Award, IEEE Systems, Man, and Cybernetics Society (1996).
- Trophy for Contribution to Technology Opportunities, National Science & Technology Board of Singapore, 1995.
- Certificate of Appreciation, Science Council of B.C., 1995.
- Special Service Plaque, IEEE Vancouver Section, 1993/94.
- Appreciative Plaque, Institution of Engineers, Singapore, 1991.
- Who's Who in the East (20th Edition).
- Best Paper Gold Award, 1984 Canadian CAD/CAM and Robotics Conference.

GRADUATE STUDENT SUPERVISION (1983-Present)

Principal supervisor for 55 Master's students and 30 Ph.D. students. (51 Master's and 24 Ph.D. students have graduated). Member of 20 Ph.D. supervisory committees. University examiner for 30 Ph.D. final examinations (chaired 10 examinations). Project supervisor for 30 undergraduate students in Industrial Automation Laboratory. Also, 15 post-doctoral fellows, 6 engineers, and 40 visiting scholars have been directly supervised.

EDITORIAL RESPONSIBILITIES

- Editor-in-Chief, *International Journal of Mechatronic Systems and Control* (2018-present).
- Editor-in-Chief, *International Journal of Control and Intelligent Systems* (2002-present).
- Member, Management Committee, *IEEE/ASME Transactions on Mechatronics* (2008-2010).
- Guest Editor, *IEEE/ASME Transactions on Mechatronics* (2007-2008).
- Honorary Editorial Board member, *International Journal of Information Acquisition* (2005-present).
- Book Review Editor, *International Journal of Hybrid Intelligent Systems* (2003-present).
- Regional Editor, North America, *Engineering Applications of Artificial Intelligence—The International Journal of Intelligent Real-Time Automation*, IFAC (1996-2005).
- Editorial Advisory Board Member, *Unmanned Systems*, (2014-present).
- Editorial Advisory Board Member, *International Journal of Automation and Logistics*, (2013-present)
- Editorial Board Member, *International Journal of Intelligent Control and Systems* (1994-2002).
- Senior Technical Editor, *Measurements and Control* (1987-2002).
- Editor, *International Journal of Control and Intelligent Systems* (2000-2002).
- Editor-in-Chief, *International Journal of Knowledge-Based Intelligent Engineering Systems* (1998-2001).
- Editorial Board Member, *Encyclopedia of Life Support Systems* (1994-2000).
- Editorial Board Member, *IASTED Journal of Control and Computers* (1995-1999).
- Regional Editor, *International Journal of Knowledge-Based Intelligent Engineering Systems*, (1997-1998).
- Editorial Board Member, *Encyclopedia of Electrical and Electronics Engineering*, J.G. Webster (editor), J. Wiley & Sons, Inc., New York, 1998.
- Assoc. Technical Editor, Transactions of ASME, *Journal of Dynamic Systems, Measurement and Control* (1993-1996).
- Assoc. Editor, *IEEE Transactions on Control Systems Technology* (1993-1996).

- Advisory Editor and Guest Editor, *Engineering Applications of Artificial Intelligence,* An International Journal, (1993-1996).
- Editor, *Dynamic Systems and Control Newsletter,* ASME (1994-1996).
- Assoc. Editor, *Dynamic Systems and Control Newsletter,* ASME (1992-1994).
- Editorial Committee Member, *University of B.C. Press* (1992-1994).
- Advisory Editor and Series Reviewer, *Butterworth Publishers,* U.K. (1987-1988).
- Consulting Editor, *Measurements and Control* (1983-1987).
- Reviewer for 40 international technical journals.

PROFESSIONAL SOCIETY ACTIVITIES
- ***Canadian Congress of Applied Mechanics:*** President (2014-15)
- ***Association of Professional Engineers and Geoscientists of British Columbia (P. Eng.):*** Member; Member, Career Awareness Committee (1993-94); Meritorious Achievement Award (1996).
- ***American Society of Mechanical Engineers (ASME):*** Fellow (1994-present); Member, Management Committee, *IEEE/ASME Transactions on Mechatronics* (2008-2010); Member, Vice Chair, Chair, Advisory Council of Dynamic systems and Control Division—DSCD (2006-2009); Executive Committee Member, Vice Chair, Chair, Past Chair (1998-2006), Secretary (1998-2001), DSCD; Chair (1993-94), Technical Activities Chair (1992-93), ASME B.C. Section; Assoc. Technical Editor, J. Dynamic Systems, Measurement and Control (1993-1996); Editor, and Assoc. Editor, DSCD Newsletter (1992-96); Chair (1993-95), Member (1991-1996), Panel on Expert Systems and Artificial Intelligence, ASME Dynamic Systems and Control Division; Member (1991-94), Panel on Instrumentation and Components, ASME Dynamic Systems and Control Division; Faculty Advisor, ASME Student Section at CMU (1979-80).
- ***Institute of Electrical and Electronics Engineers (IEEE):*** Fellow (1998-present); Secretary (1997-98), Vancouver Section; Member (1997-present), Technical Committee on Intelligent Control; Chairman (1996-97), Vancouver Chapter of Industry Applications Society; Chairman (1993-94; 1998-99), Vancouver Chapter of Control Systems Society; Assoc. Editor, IEEE Trans. on Control Systems Technology (1994-1997); IEEE Distinguished Lecturer to Region IX (1986).
- ***Science Council of B.C.:*** Chairman (1993-94), Member (1991-94), Engineering and Applied Sciences Committee; Member (1993-94), Human Resources Committee.
- ***Canadian Society for Fuzzy Information and Neural Systems:*** Vice President (1993-2001).
- ***International Federation of Intelligent Automation:*** Vice President, First Council (1992-95).

CONFERENCE/ WORKSHOP ORGANIZATION (as Chair)
- Honorary Chair, *IEEE International Conference on Computer Science and Education (ICCSE)*, Houston, Texas, USA, August 2017.
- Honorary Chair, *Canadian Congress of Applied Mechanics (CANCAM)*, Victoria, BC, Canada, May 2017.
- General Chair, *The 9th IEEE International Conference on Computer Science and Education (ICCSE)*, Vancouver, BC, Canada, August 2014.

- General Chair, *Canadian Congress of Applied Mechanics (CANCAM)*, Vancouver, BC, Canada, June 2011.
- General Chair, *The 13th IASTED International Conference on Control and Applications* (*CA2011*), Vancouver, BC, Canada, June 2011.
- Track Organizer and Chair; Panel Organizer and Chair, *ASME International Mechanical Engineering Congress and Exposition* (*IMECE*), Vancouver, BC, Canada November 2010.
- General Co-Chair, *IEEE/ASME International Conference on Advanced Intelligent Mechatronics* (*AIM 2010*), Montreal, Canada, July 2010.
- Program Chair, *8th IEEE International Conference on Control & Automation (ICCA)*, Xiamen, China, June 2010.
- General Chair, *IEEE International Conference on Automation and Logistics*, Qingdao, China, September 2008.
- Program Co-Chair, *IEEE International Conference on Systems, Man and Cybernetics*, Singapore, October 2008.
- General Co-Chair, *IEEE/ASME International Conference on Advanced Intelligent Mechatronics*, Xi'an, China, July 2008.
- Co-Chair, International Advisory Board, *IEEE International Conference on Information Acquisition*, Jeju Island, Korea, July 2007.
- Program Co-Chair, *IEEE International Conference on Integration Technology*, Shenzhen, China, March 2007.
- Co-Chair, Advisory Council, *IEEE International Conference on Information Acquisition*, Shandong, China, August 2006.
- General Chair, *International Symposium on Collaborative Research in Applied Science*, Vancouver, Canada, October 2005.
- Track Chair, Architectures of Intelligent Systems, *Fourth International Conference on Intelligent Systems Design and Applications*, Budapest, Hungary, August 2004.
- Track Chair, Americas, *IEEE/ASME International Conference on Advanced Intelligent Mechatronics*, Kobe, Japan, July 2003.
- General Char, *IEEE International Symposium on Intelligent Control*, Vancouver, Canada, October 2002.
- Invited Sessions Chair, *IEEE/ASME International Conference on Intelligent Mechatronics*, Como, Italy, July 2001.
- Conference Chair, *International Symposium on Intelligent Automation and Control*, Anchorage, Alaska, May 1998.
- Canada Liaison Chair, *International Conference on Conventional and Knowledge-Based Intelligent Electronic Systems*, Adelaide, Australia, May 1998.
- Canada Liaison Chair, *International Conference on Conventional and Knowledge-Based Intelligent Electronic Systems*, Adelaide, Australia, May 1997.
- Program Chair, *IEEE International Conference on Systems, Man and Cybernetics*, Vancouver, BC, October 1995.
- Program Chair, *IASTED International Conference on Modelling and Simulation*, Colombo, Sri Lanka, July 1995.
- Organizer, *Intelligent Motion Control Workshop*, In collaboration with GALIL Motion Control, Inc., USA; Vancouver, B.C., May 1994.
- Program Chair, *2nd IEEE Conference on Control Applications*, Vancouver, B.C., September 1993.
- Organizer, *2nd BC Workshop on Intelligent Control and Applications,* Burnaby, BC, July 1992.

- Member, International Program Committee for over <u>40</u> other international conferences.

KEYNOTE ADDRESSES

1. "Mechatronic System Modeling Using a Unified and Integrated Approach," *The 12th IEEE International Conference on Computer Science and Education*, Houston, Texas, USA, August 2017.
2. "Some Issues and Applications of Multi-robot Cooperation," *IEEE 20th International Conference on Computer Supported Cooperative Work in Design*, Nanchang, China, May 2016.
3. "A Technology Framework for Automated Spatiotemporal Monitoring of the Quality of Water Sources," *The 10th IEEE International Conference on Industrial and Information Systems*, Peradeniya, Sri Lanka, December 2015.
4. "Sensing Issues in the Automated Monitoring of the Quality of Drinking Water," *The 10th IEEE International Conference on Computer Science and Education*, Cambridge, England, July 2015.
5. "An ICT Platform for Automated Monitoring of the Quality of Drinking Water," The *7th International Conference on Information and Automation for Sustainability*, Colombo, Sri Lanka, December 2014.
6. "Telemedicine for Urban Environments," *Annual International Conference of Emerging Industry and the 12th Conference on International Exchange of Professionals*, Shenzhen, China, November 2013.
7. "Automated Monitoring of Human Health as a Universal Concept," *The 8th IEEE International Conference on Computer Science and Education (ICCSE)*, Colombo, Sri Lanka, April 2013.
8. "Robotic Technologies for Automated Homecare," *Nanqiang Lecture*, Xiamen University, Xiamen, China, April 2013.
9. "Telemedicine—An Extension of Automated Homecare," *The IASTED International Conference on Engineering and Applied Science*, Colombo, Sri Lanka, December 2012.
10. "IMAGINE Telemedicine: Improved Medical Access through Grama Interactive Environment," *International Workshop on M2M Technology 2012*, Taipei, Taiwan, October 2012.
11. "Trends in Homecare Robotics and Telemedicine," *IEEE International Conference on Automation and Logistics* (*IEEE ICAL*), ZhengZhou, China, August 2012.
12. "Research and Development in Homecare Robotics," *Canadian Society for Mechanical Engineering International Congress*, Winnipeg, Manitoba, June 2012.
13. "Two Directions in the Application of Homecare Robotics," *The 8th International Conf. on Ubiquitous Robots and Ambient Intelligence*, Incheon, South Korea, November 2011.
14. "Design Evolution of Mechatronic Systems through Integrated Modeling, On-Line Monitoring and Supervised Evolutionary Computing," *The 6th IEEE Conference on Industrial Electronics and Applications* (*ICIEA 2011*), Beijing, China, June 2011.
15. "If You are Determined, No Bar is Too High," *The Convocation Address*, Open University of Sri Lanka, Colombo, Sri Lanka, December 2010.
16. "Unified Modeling and Design Evolution of Mechatronic Systems," *The 7th Jordanian International Mechanical Engineering Conference* (*JIMEC 07*), Amman, Jordan, October 2010.

17. "Human Rescue in Disaster Situations Using Multi-Robot Cooperation," *The 5th IEEE International Conference on Computer Science & Education* (*ICCSE*), Hefei, China, August 2010.

18. "Multi-domain Modeling and Evolutionary Design of Mechatronic Systems," *Nanqiang Lecture*, Xiamen University, Xiamen, China, June 2010.

19. "Multi-Robot Cooperation in Tasks Involving Human Security/Safety," *The 10th International Conference on Computers, Communications and Systems* (*ICCCS*), Daegu, Korea, November 2009.

20. "A Unified Framework Using Linear Graphs for Modeling Interconnected Electro-Mechanical Systems," *The 4th SLIIT Research Symposium, Colombo*, Sri Lanka, December 2008.

21. "Integrated Modeling and Design in Mechatronics—A Justification," *The 3rd International Conference on Computer Science and Education*, Kaifeng, China, July 2008.

22. "To be Rich You Don't Need Money," *The Convocation Address*, University of Waterloo, ON, Canada, June 2008.

23. "An Integrated Approach for Mechatronics—A Rationale," *The 3rd International Conference on Information and Automation for Sustainability*, Melbourne, Australia, December 2007.

24. "Enhancement of the Synergy in Mechatronics through Collaborative Research and Education," *IEEE International Conference on Integration Technology*, Shenzhen in China, March 2007.

25. "University-Industry Collaborations in Intelligent Robotics and Automation," *International Conference on Industrial and Information Systems*, Peradeniya, Sri Lanka, August 2006.

26. "Application of the Mechatronic Design Quotient (MDQ) for Intelligent Design and Evolutionary Design of Mechatronic Systems," *The IEEE International Conference on Mechatronics and Automation*, Luoyang, China, June 2006.

27. "Multi-Domain Considerations in the Design of Intelligent Mechatronic Systems," *International Conference on Sensing, Computing and Automation,* Chongqing, China, May 2006.

28. "Mechatronic Design Quotient (MDQ)—Inspiration from Natural Intelligence and Evolution in the Design of Mechatronic Systems," *The 3rd International Conference on Computational Intelligence, Robotics and Autonomous Systems* (*CIRAS*), Singapore, December 2005.

29. "Intelligent Mechatronics as a Multidisciplinary Design Area," *International Conference on Information and Automation*, Colombo, Sri Lanka, December 2005.

30. "A Design Perspective of Intelligent Mechatronics," *International Embedded and Hybrid Systems Conference*, Singapore, May 2005.

31. "Intelligent Robotics and Automation—Transferring from Academic Projects to Practical Applications," Distinguished Public Lecture, *Singapore Robotics Games*, Singapore, May 2005.

32. "Sensing and Information Acquisition for Intelligent Mechatronic Systems," *Symposium on Information Acquisition*, Chinese Academy of Sciences, Hefei, China, November 2003.

33. "Recent Advances in Soft Computing Approaches and Their Applications," *IEEE International Conference on Systems, Man And Cybernetics*, Hammamet, Tunisia, October 2002.

34. "Some Examples of University-Industry Collaborative Research and Development in Industrial Automation," *World Automation Congress*, Orlando, FL, June 2002.

35. "University-Industry Collaborative Research: Observations, Criticism, and Suggestions through Personal Experience," The 3rd *IEEE International Conference on Control Theory and Applications*, Sun City, South Africa, December 2001.

36. "Intelligent Automation of Industrial Processes—From the Research Laboratory to the Plant Floor," *World Automation Congress*, Maui, Hawaii, June 2000.
37. "Intelligent Supervision and Control of Industrial Processes," *IFAC International Symposium on Artificial Intelligence in Real-Time Control*, Kuala Lumpur, Malaysia, September 1997.
38. "Application of Fuzzy Logic and Approximate Reasoning in Process Automation," *International Conference on Conventional and Knowledge-Based Intelligent Electronic Systems*, Adelaide, Australia, May 1997.
39. "Recent Research in Automation of Fish Processing Industry," *Symposium on New Developments in Seafood Science and Technology*, Vancouver, B.C., May 1994.
40. "Sensor Technology for Process Automation," *Engineering Physics Project Fair*, University of British Columbia, Vancouver, BC, March 1993.

INVITED LECTURES: Over 100 (list available) during the past 25 years in 15 countries.

EXTERNAL ACCESSOR OF ACADEMIC/RESEARCH PROGRAMS
- Austrian Center for Symbiotic Mechatronics (2017).
- Austrian Center of Competence in Mechatronics, ACCM (2012).
- Graduate Programs in Mechanical and Materials Engineering, Queen's University, ON, Canada, 2008.
- Institute of Precision Engineering, Chinese University of Hong Kong, 2005-2007.
- Graduate Programs in Engineering, University of Guelph, ON, Canada, 2006.
- M.Sc. Program in Mechatronics, National University of Singapore (2000-2005)
- M.Sc. Program in Automation Systems and Management, Department of Manufacturing Engineering, City University of Hong Kong (1995-98).
- M.Sc. Program in Industrial Automation, City University of Hong Kong (1992-95).

EXTERNAL EXAMINERSHIPS (Ph.D.)
- University of Toronto, Canada, Department of Mechanical Engineering External Examiner (Various years)
- University of Waterloo, Canada, Department of Systems Design Engineering (Various years)
- National University of Singapore, Department of Electrical and Computer Engineering (Various years)
- National University of Singapore, Department of Mechanical Engineering (Various years)
- University of Melbourne, Australia, Department of Mechanical Engineering.
- Nanyang Technical University, Singapore, Department of Electrical and Electronic Engineering (Various years)
- National University of Singapore, Graduate School of Integrative Sciences and Engineering (Various years)
- Indian Institute of Technology, Kharagpur, Dept of Electrical Engineering (Various years)
- Memorial University of Newfoundland, Canada, Faculty of Applied Science
- NWFP University of Engineering & Technology, Peshawer, Pakistan Department of Electrical Engineering.
- University of Hong Kong, Faculty of Engineering

- University of Alberta, Canada, Dept of Electrical and Computer Engineering (Various years)
- University of Saskatchewan, Canada, Department of Electrical Engineering (Various years)
- University of Alberta, Canada, Department of Chemical and Materials Engineering
- University of South Australia, Department of Electrical Engineering
- Indian Institute of Technology, Delhi, Department of Electrical Engineering,
- University of Victoria, Canada, Department of Electrical Engineering
- University of Victoria, Canada, Department of Mechanical Engineering
- Simon Fraser University, Canada, School of Engineering Science
- McGill University, Montreal, Canada, Department of Mechanical Engineering

UNIVERSITY COMMITTEES
- Member, ARPT (Appointment, Reappointment, Promotion, and Tenure) Committee, Faculty of Applied Science (2017-2018).
- Member, Faculty Research Awards Committee (2015-2018)
- Chair, Mechatronics and Manufacturing Group, Department of Mechanical Engineering, UBC (2015-2018).
- Member, Search Committee for Seaspan Chair Department of Mechanical Engineering (2017-2018).
- Member, ARPT (Appointment, Reappointment, Promotion, and Tenure) Committee of candidate of UBCO, Faculty of Applied Science (2014-15)
- Member, Steacie Fellowship Committee (2013)
- Member, Canada Research Chair Selection Committee, Faculty of Applied Science (2011-2013).
- Member, ARPT (Appointment, Reappointment, Promotion, and Tenure) Committee, Faculty of Applied Science (2010-2013).
- Member, Resource Allocation Committee, Institute for Computing, Information, and Cognitive Systems (2001-2007).
- Chair, Manufacturing and Controls Group, Department of Mechanical Engineering, UBC (2002-2012).
- Member, Search Committee of Head of the Department, Electrical and Computer Engineering (2007-2008)
- Member, Advisory Council, Department of Mechanical Engineering, UBC (2001-2009)
- Department Representative, Institute for Computing Information and Cognitive Systems - ICICS, UBC (1995-2012).
- Member, University Advisory Committee on Canada Foundation for Innovation (1999-2000)
- Member, University Graduate Council (1998-2000).
- Member, Vice President's Committee on Research Promotional Campaign, University of British Columbia - UBC (1997-2005).
- Chair, Computer Committee, Department of Mechanical Engineering, UBC (1992-94, 2001-2003).
- Member, University Committee on Faculty Awards (1997-2002).
- Member, Dean's Committee on Research, Faculty of Applied Science, UBC (1995-1999).
- Member, Killam Fellowship Committee, UBC (1996-1999).
- Chair, Faculty Search Committee in Robotics and Automation, UBC (1989-90; 1993-94).
- Member, Editorial Committee, UBC Press (1991-94).

- Director, Computer-Aided Automation Program, Department of Mechanical Engineering, UBC (1991-1992).
- Department Representative, Center for Integrated Computer Systems Research - CICSR, UBC (1991-1995).
- Faculty Senator, Carnegie Mellon University (1984-1986).

SELECTION COMMITTEE ACTIVITIES
- Austrian Center for Symbiotic Mechatronics, 2017.
- Austrian Center of Competence in Mechatronics (ACCM), 2012.
- New Fellow Selection Committee, Royal Society of Canada (2011-2012).
- Austrian Science Fund (2011)
- Assessor, Centre for Innovative Processing Technology, Research Council of Norway, 2010.
- Israel Science Foundation (2010)
- Assessor, Austrian Center of Competence in Mechatronics (ACCM), 2007.
- Member, Grant Selection Committee, Natural Sciences and Engineering Research Council, Canada, 2002-2005.
- Member, Research Committee (Grant Selection), National University of Singapore, 2005.
- Chair, On-Site Review Committee, NSERC Industrial Research Chair, Department of Electrical and Computer Engineering, University of Manitoba, Winnipeg, Canada, 2003.
- Member, Dynamic Systems and Control Review Panel (and Research Proposal Reviewer), *U.S. National Science Foundation*.
- Research Proposal Assessor, National Research Foundation, Singapore.
- Research Proposal Reviewer, *Natural Sciences and Engineering Research Council of Canada*.
- Research Proposal Reviewer, *Research Grants Commission, Hong Kong*.
- Research Proposal Reviewer, *National University of Singapore*.
- Research Proposal Reviewer, *Agency for Science, Technology and Research (A*STAR)*, Singapore.
- Research Proposal Reviewer, *City University of Hong Kong*.
- Scholarship Reviewer, *Science Council of B.C.*
- Interview Board Member, *National Research Council of Canada, Institute for Machinery Research.*

INDUSTRIAL CONSULTING ACTIVITIES
- Structa Wire (ENGAGE project on Resistance Welding) (2013-14)
- Expert Witness in Robotic Arc Welding and Automation, the Supreme Court of BC (2006).
- International High-Tech Industries, Inc., Vancouver, Canada (2004-2006).
- U.S. Department of Energy, Washington, DC (2003).
- PhoenixCloud Explorations, Ltd., Vancouver, B.C. (1998-2002).
- Pharmasmart, Vancouver, B.C. (1998).
- Enterprise Developments, Inc., Vancouver, B.C. (1991-92).
- Measurements and Data Corp., Pittsburgh, PA (1982-2001).
- ZONIC Corp., Cincinnati, OH (1986).
- Tippins Machinery Co., Pittsburgh, PA (1985-1986).
- American Robot Corp., Pittsburgh, PA (1985).

- IBM Corp., Boca Raton, FL (1985).
- Westinghouse Electric Corp., Pittsburgh, PA (1979-1984).

BOOK/MANUSCRIPT REVIEWER
- Wiley (2014, 2016).
- Birkhäuser Science (2015)
- Springer (2007, 2009, 2013, 2014, 2016).
- Taylor & Francis, CRC Press (2001-2003, 2007, 2009, 2010, 2011, 2017).
- Springer Verlag (2002).
- Artech House, Inc. (1998).
- Prentice Hall, Inc. (1992, 1997).
- Gordon and Breach Publishers, Inc. (1993).
- Shock and Vibration Digest (1991).
- MacMillan Publishing Co. (1986).
- Reviewer, *Encyclopedia of Electrical and Electronics Engineering*, J.G. Webster (Editor), John Wiley & Sons, Inc.
- Book Reviewer for the *Shock and Vibration Digest*

MISCELLANEOUS ACTIVITIES
- Media Interviews (CBC TV, CBC Radio, in Several Newspapers).
- Invited Panelist, New Canadian Engineers and Computer Scientists, *New Connections Project*, Vancouver (1994).
- Judge, *Canada-wide Science Fair* (1991).
- Speaker and Volunteer, *Scientists in the Schools Program*, B.C. (1991-1999).
- Judge, *Vancouver Lower Mainland Regional Science Fair* (1989-1991).
- Panelist, *Airshow Canada Symposium*, Vancouver, Canada (1989).
- Juror, *Burroughs Design Competition,* Pittsburgh, PA (1987).
- Member, *U.S. Technical Delegation to China,* NSF Sponsored (1986).
- Member, ASME Panel on Microcomputers in Mechanical Engineering Education (1979).

PUBLICATIONS

<u>**BOOKS**</u>

B1. De Silva, C.W., *MODELING OF DYNAMIC SYSTEMS—With Engineering Applications*, Taylor & Francis/CRC Press, Boca Raton, FL, 2017. **(690 pages**)

B2. De Silva, C.W., *SENSOR SYSTEMS—Fundamentals and Applications*, Taylor & Francis/CRC Press, Boca Raton, FL, 2016. **(745 pages)**

B3. De Silva, C.W., *SENSORS AND ACTUATORS—Engineering System Instrumentation*, 2nd Edition, Taylor & Francis/CRC Press, Boca Raton, FL, 2016. **(838 pages)**

B4. De Silva, C.W., *Mechanics of Materials*, Taylor & Francis/CRC Press, Boca Raton, FL, 2014. **(448 pages)**

B5. De Silva, C.W., *Mechatronics—A Foundation Course*, Taylor & Francis/CRC Press, Boca Raton, FL, 2010. **(895 pages)**

B6. De Silva, C.W., *Modeling and Control of Engineering Systems*, Taylor & Francis/CRC Press, Boca Raton, FL, 2009. **(795 pages)**

B7. De Silva, C.W., *SENSORS AND ACTUATORS—Control System Instrumentation*, Taylor & Francis/CRC Press, Boca Raton, FL, 2007. **(691 pages)**

B8. De Silva, C.W., *Vibration—Fundamentals and Practice*, 2nd Edition, Taylor & Francis/CRC Press, Boca Raton, FL, 2007. **(1062 pages)**

B9. De Silva, C.W., *Mechatronics—An Integrated Approach*, Taylor & Francis/CRC Press, Boca Raton, FL, 2005. **(1344 pages)**

B10. Karray, F.O. and de Silva, C.W., *Soft Computing and Intelligent Systems Design—Theory, Tools, and Applications*, Addison Wesley, New York, NY, 2004. **(585 pages)**

B11. De Silva, C.W., *Vibration Fundamentals and Practice*, Taylor & Francis/CRC Press, Boca Raton, FL, 2000. **(970 pages)**

B12. De Silva, C.W., *Robotics and Control*, Measurements and Data Corp., Pittsburgh, PA, 1997. **(79 pages)**

B13. De Silva, C.W., *INTELLIGENT CONTROL*: *Fuzzy Logic Applications*, CRC Press, Boca Raton, FL, 1995. **(343 pages)**

B14. De Silva, C.W. and Gamage, L.B., *C-Language Programming*, Measurements and Data Corp., Pittsburgh, PA, 1994. **(81 pages)**

B15. De Silva, C.W., *Control System Modeling,* Measurements and Data Corp., Pittsburgh, PA, 1989. **(66 pages)**

B16. De Silva, C.W., and MacFarlane, A.G.J., *Knowledge-Based Control with Application to Robots,* Springer-Verlag, Berlin, Germany, 1989. **(198 pages)**

B17. De Silva, C.W., *Control Sensors and Actuators,* Prentice-Hall, Englewood Cliffs, NJ, 1989. **(436 pages)**

B18. De Silva, C.W. and Aronson, M.H., *Process Control,* Measurements and Data Corp., Pittsburgh, PA, 1986. **(76 pages)**

B19. De Silva, C.W., et al., *Probability and Statistics Exam File,* Engineering Press Inc., San Jose, CA, 1985. **(346 pages)**

B20. De Silva, C.W., et al., *Dynamics Exam File,* Engineering Press, Inc., San Jose, CA, 1985. **(346 pages)**

B21. De Silva, C.W., et al., *Statics Exam File*, Engineering Press, Inc., San Jose, CA, 1985. **(346 pages)**

B22. De Silva C.W., and Wormley, D.N., *Automated Transit Guideways: Analysis and Design,* D.C. Heath and Co./ Simon & Schuster, Lexington, MA, 1983. **(277 pages)**

B23. De Silva, C.W., *Dynamic Testing and Seismic Qualification Practice,* D.C. Heath and Co./ Simon & Schuster, Lexington, MA, 1983. **(376 pages)**

B24. De Silva, C.W., *Modern Mathematics,* Panther Books, Malaysia, 1974. **(182 pages)**

EDITED BOOKS AND VOLUMES

EB1. *MECHATRONICS—Fundamentals and Applications*, Taylor & Francis/CRC Press, Boca Raton, FL, 2016 (Editor, 631 pages).

EB2. *MECHATRONIC SYSTEMS—Devices, Design, Control, Operation, and Monitoring*, Taylor & Francis/CRC Press, Boca Raton, FL, 2008 (Editor, 400 pages).

EB3. *Vibration Monitoring, Testing, and Instrumentation,* Taylor & Francis/CRC Press, Boca Raton, FL, 2007 (Editor, 400 pages).

EB4. *Vibration Damping, Control, and Design,* Taylor & Francis/CRC Press, Boca Raton, FL, 2007 (Editor, 500 pages). **Also translated into Chinese.**

EB5. *Computer Techniques in Vibration,* Taylor & Francis/CRC Press, Boca Raton, FL, 2007 (Editor, 350 pages).

EB6. *Vibration and Shock Handbook,* Taylor & Francis/CRC Press, Boca Raton, FL, 2005 (Editor-in-Chief, 1870 pages).

EB7. *Intelligent Machines: Myths and Realities*, Taylor & Francis/CRC Press, Boca Raton, FL, 2000 (Editor, 340 pages).

EB8. *Intelligent Adaptive Control: Industrial Applications*, Taylor & Francis/CRC Press, Boca Raton, FL, 1999 (Co-Editor, 431 pages).

EB9. *Intelligent Automation and Control,* Recent Trends in Development and Applications, Vol. 6, TSI Press, Albuquerque, NM, 1998 (Co-Editor).

EB10. *Intelligent Electronic Systems*, Special Issue of the International Journal of Intelligent Real-Time Automation, Pergamon Press, 1998 (Guest Editor).

EB11. *Modelling and Simulation*, International Association of Science and Technology for Development, Calgary, Alberta, July 1995 (Co-Editor).

EB12. *Dynamic Systems and Control - 1994*, American Society of Mechanical Engineers, New York, Vol. DSC-55-1, 1994 (Associate Editor).

EB13. *Control Applications of Fuzzy Logic*, Special Issue of Engineering Applications of Artificial Intelligence, Pergamon Press, Vol. 7, No. 5, 1994. (Guest Editor).

EB14. *Intelligent Control Systems - 1993,* The American Society of Mechanical Engineers, New York, Vol. DSC-48, 1993 (Co-Editor).

EB15. *Knowledge-Based Applications of Automation,* Special Issue of Engineering Applications of Artificial Intelligence, Pergamon Press, Vol. 6, No. 2, 1993. (Guest Editor).

EB16. *Intelligent Control Systems-1992,* American Society of Mechanical Engineers, New York, Vol. DSC-45, 1992 (Co-Editor).

EB17. *Modeling and Simulation,* Instrument Society of America, Research Triangle Park, NC, Vol. 22, Parts 1-5, 1992, (Associate Editor).

EB18. *Advances in Instrumentation,* American Society of Mechanical Engineers, New York, Vol. DSC-30, 1991, (Co-Editor).

EB19. *Modeling and Simulation,* Instrument Society of America, Research Triangle Park, NC, Vol. 22, Parts 1-5, 1991 (Associate Editor).

SECTIONS OF BOOKS

SB1. De Silva, C.W., "Mechatronic Engineering," *MECHATRONICS—Fundamentals and Applications*, Editors: de Silva, C.W., Khoshnoud, F., Li, M., and Halgamuge, S., Taylor & Francis/CRC Press, Boca Raton, FL, pp. 1-13, 2016.

SB2. Khoshnoud, F., de Silva, C.W., and Esat, I., "Bio-MEMS Sensors and Actuators," *MECHATRONICS—Fundamentals and Applications*, Editors: de Silva, C.W., Khoshnoud, F., Li, M., and Halgamuge, S., Taylor & Francis/CRC Press, Boca Raton, FL, pp. 221-252, 2016.

SB3. Xi, B. and de Silva, C.W., "System Identification for Human Adaptive Mechatronics," *MECHATRONICS—Fundamentals and Applications*, Editors: de Silva, C.W., Khoshnoud, F., Li, M., and Halgamuge, S., Taylor & Francis/CRC Press, Boca Raton, FL, pp. 253-293, 2016.

SB4. Khan, M.T., de Silva, C.W., and Iqbal, J., "Intelligent Robotic Systems," *MECHATRONICS—Fundamentals and Applications*, Editors: de Silva, C.W., Khoshnoud, F., Li, M., and Halgamuge, S., Taylor & Francis/CRC Press, Boca Raton, FL, pp. 295-320, 2016.

SB5. Behbahani, S, Pezeshki, L., and de Silva, C.W., "Automated Mechatronic Design Tool," *MECHATRONICS—Fundamentals and Applications*, Editors: de Silva, C.W., Khoshnoud, F., Li, M., and Halgamuge, S., Taylor & Francis/CRC Press, Boca Raton, FL, pp. 323-358, 2016.

SB6. Lang, H. and de Silva, C.W., "Visual Servo Systems for Mobile Robots," *MECHATRONICS—Fundamentals and Applications*, Editors: de Silva, C.W., Khoshnoud, F., Li, M., and Halgamuge, S., Taylor & Francis/CRC Press, Boca Raton, FL, pp. 499-528, 2016.

SB7. Khoshnoud, F. and de Silva, C.W., "Mechatronics of Vehicle Control and Self-powered Systems," *Advanced Autonomous Vehicle Design for Severe Environments*, Editors: Vantsevich, V.V. and Blundell, M.V., IOS Press, Washington, DC, pp. 296-328, 2015.

SB8. De Silva, C.W., "Electronic Components," *Eshbach's Handbook of Engineering Fundamentals*, 5th Edition, Editor: M. Kutz, John Wiley & Sons, Hoboken, NJ, pp.1003-1022, 2009.

SB9. De Silva, C.W., "Intelligent Control," *Encyclopedia of Complexity and Systems Science*, Editor: R.A. Meyers, Springer, New York, pp. 4868-4891, 2009.

SB10. Tan, K.K., Huang, S., Lee, T.H., Putra, A.S., Teo, C.S., and de Silva, C.W., "Fault Detection and Diagnosis in Mechatronic Systems," *MECHATRONIC SYSTEMS—Devices, Design, Control, Operation, and Monitoring*, Editor: Clarence W. de Silva, Taylor & Francis/CRC Press, Boca Raton, FL, 2008.

SB11. Pirmoradi, F., Sassani, F., and de Silva, C.W., "Health Monitoring of a Mechatronic System," *MECHATRONIC SYSTEMS—Devices, Design, Control, Operation, and Monitoring*, Editor: Clarence W. de Silva, Taylor & Francis/CRC Press, Boca Raton, FL, 2008.

SB12. Alrasheed, M.R., de Silva, C.W., and Gadala, M.S., "Evolutionary Optimization in the Design of a Heat Sink," *MECHATRONIC SYSTEMS—Devices, Design, Control, Operation, and Monitoring*, Editor: Clarence W. de Silva, Taylor & Francis/CRC Press, Boca Raton, FL, 2008.

SB13. Yang, L., Chew, C.M., Poo, A.N., and de Silva, C.W., "Kinematic Design Optimization of Acrobot," *MECHATRONIC SYSTEMS—Devices, Design, Control, Operation, and Monitoring*, Editor: Clarence W. de Silva, Taylor & Francis/CRC Press, Boca Raton, FL, 2008.

SB14. Behbahani, S. and de Silva, C.W., "Mechatronic Design Quotient (MDQ)," *MECHATRONIC SYSTEMS—Devices, Design, Control, Operation, and Monitoring*, Editor: Clarence W. de Silva, Taylor & Francis/CRC Press, Boca Raton, FL, 2008.

SB15. Behbahani, S. and de Silva, C.W., "Evolutionary Mechatronic Tool," *MECHATRONIC SYSTEMS—Devices, Design, Control, Operation, and Monitoring*, Editor: Clarence W. de Silva, Taylor & Francis/CRC Press, Boca Raton, FL, 2008.

SB16. Behbahani, S. and de Silva, C.W., "Mechatronic Modeling and Design," *MECHATRONIC SYSTEMS—Devices, Design, Control, Operation, and Monitoring*, Editor: Clarence W. de Silva, Taylor & Francis/CRC Press, Boca Raton, FL, 2008.

SB17. Wang, Y. and de Silva, C.W., "Computer Vision in Multi-robot Cooperative Control," *MECHATRONIC SYSTEMS—Devices, Design, Control, Operation, and Monitoring*, Editor: Clarence W. de Silva, Taylor & Francis/CRC Press, Boca Raton, FL, 2008.

SB18. Fan, T. and de Silva, C.W., "Model Predictive Control of a Flexible Robot," *MECHATRONIC SYSTEMS—Devices, Design, Control, Operation, and Monitoring*, Editor: Clarence W. de Silva, Taylor & Francis/CRC Press, Boca Raton, FL, 2008.

SB19. De Silva, C.W., "Technology Needs for Mechatronic Systems," *MECHATRONIC SYSTEMS—Devices, Design, Control, Operation, and Monitoring*, Editor: Clarence W. de Silva, Taylor & Francis/CRC Press, Boca Raton, FL, 2008.

SB20. De Silva, C.W., "Human response to Vibration," *Vibration Monitoring, Testing, and Instrumentation,* Editor: Clarence W. de Silva, CRC Press/Taylor & Francis, Boca Raton, FL, 2007.

SB21. De Silva, C.W., "Seismic Qualification of Equipment," *Vibration Monitoring, Testing, and Instrumentation,* Editor: Clarence W. de Silva, CRC Press/Taylor & Francis, Boca Raton, FL, 2007.

SB22. De Silva, C.W., "Experimental Modal Analysis," *Vibration Monitoring, Testing, and Instrumentation,* Editor: Clarence W. de Silva, CRC Press/Taylor & Francis, Boca Raton, FL, 2007.

SB23. De Silva, C.W., "Vibration Testing," *Vibration Monitoring, Testing, and Instrumentation,* Editor: Clarence W. de Silva, CRC Press/Taylor & Francis, Boca Raton, FL, 2007.

SB24. De Silva, C.W., "Signal Conditioning and Modification," *Vibration Monitoring, Testing, and Instrumentation,* Editor: Clarence W. de Silva, CRC Press/Taylor & Francis, Boca Raton, FL, 2007.

SB25. De Silva, C.W., "Vibration Instrumentation," *Vibration Monitoring, Testing, and Instrumentation,* Editor: Clarence W. de Silva, CRC Press/Taylor & Francis, Boca Raton, FL, 2007.

SB26. De Silva, C.W., "Vibration Design and Control," *Vibration Damping, Control, and Design*, Editor: Clarence W. de Silva, CRC Press/Taylor & Francis, Boca Raton, FL, 2007.

SB27. De Silva, C.W., "Vibration Damping," *Vibration Damping, Control, and Design*, Editor: Clarence W. de Silva, CRC Press/Taylor & Francis, Boca Raton, FL, 2007.

SB28. De Silva, C.W., "Vibration Signal Analysis," *Computer Techniques in Vibration,* Editor: Clarence W. de Silva, CRC Press/Taylor & Francis, Boca Raton, FL, 2007.

SB29. De Silva, C.W., "Vibration Design and Control," *Vibration and Shock Handbook*, Editor: Clarence W. de Silva, Taylor & Francis/CRC Press, Boca Raton, FL, 2005.

SB30. De Silva, C.W., "Seismic Qualification of Equipment," *Vibration and Shock Handbook*, Editor: Clarence W. de Silva, Taylor & Francis/CRC Press, Boca Raton, FL, 2005.

SB31. De Silva, C.W., "Vibration Damping," *Vibration and Shock Handbook*, Editor: Clarence W. de Silva, Taylor & Francis/CRC Press, Boca Raton, FL, 2005.

SB32. De Silva, C.W., "Experimental Modal Analysis," *Vibration and Shock Handbook*, Editor: Clarence W. de Silva, Taylor & Francis/CRC Press, Boca Raton, FL, 2005.

SB33. De Silva, C.W., "Vibration Testing," *Vibration and Shock Handbook*, Editor: Clarence W. de Silva, Taylor & Francis/CRC Press, Boca Raton, FL, 2005.

SB34. De Silva, C.W., "Signal Conditioning and Modification," *Vibration and Shock Handbook*, Editor: Clarence W. de Silva, Taylor & Francis/CRC Press, Boca Raton, FL, 2005.

SB35. 17De Silva, C.W., "Vibration Signal Analysis," *Vibration and Shock Handbook*, Editor: Clarence W. de Silva, Taylor & Francis/CRC Press, Boca Raton, FL, 2005.

SB36. De Silva, C.W., "Distributed-Parameter Systems," *Vibration and Shock Handbook*, Editor: Clarence W. de Silva, Taylor & Francis/ CRC Press, Boca Raton, FL, 2005.

SB37. De Silva, C.W., "Modal Analysis," *Vibration and Shock Handbook*, Editor: Clarence W. de Silva, Taylor & Francis/CRC Press, Boca Raton, FL, 2005.

SB38. De Silva, C.W., "Frequency Domain Analysis," *Vibration and Shock Handbook*, Editor: Clarence W. de Silva, Taylor & Francis/CRC Press, Boca Raton, FL, 2005.

SB39. De Silva, C.W., "Time Domain Analysis," *Vibration and Shock Handbook*, Editor: Clarence W. de Silva, Taylor & Francis/CRC Press, Boca Raton, FL, 2005.

SB40. Cao, Y. and de Silva, C.W., "Adaptive Control of a Manipulator with Flexible Joints Using Neural Networks," *Mechatronics and Machine Vision: Future Trends*, Editor: John Billingsley, Research Studies Press LTD., Baldock, Hertfordshire, England, pp. 71-78, 2003.

SB41. Zhang, J. and de Silva, C.W., "Intelligent Hierarchical Control of a Space-Based Deployable Manipulator," *Mechatronics and Machine Vision: Future Trends*, Editor: John Billingsley, Research Studies Press LTD., Baldock, Hertfordshire, England, pp. 61-70, 2003.

SB42. De Silva, C.W., Wong, K.H., and Modi, V.J., "Development of a Novel Multi-module Manipulator System: Dynamic Model and Prototype Design," *Mechatronics and Machine Vision: Current Practice*, R.S. Bradbeer and J. Billingsley (editors), Research Studies Press, Ltd., Hertfordshire, Baldock, England, pp. 161-168, 2002.

SB43. De Silva, C.W., "Sensors for Control," *Encyclopedia of Physical Science and Technology*, 3rd Edition, R.A. Meyers (editor), Academic Press, San Diego, CA, Vol. 14, pp. 609-650, 2001.

SB44. De Silva, C.W., "What Makes a Machine Intelligent?," *Intelligent Machines: Myths and Realities*, C.W. de Silva (editor), CRC Press, Boca Raton, FL, pp. 1-42, 2000.

SB45. De Silva, C.W., "Electronic Components", *Encyclopedia of Electrical and Electronics Engineering*, J.G. Webster (editor), J. Wiley & Sons, Inc., New York, Vol. 6, pp. 577-594, 1999.

SB46. Kurnianto, S., de Silva, C.W., Croft, E.A., and Gosine, R.G., "Intelligent Automation of Herring Roe Grading", *Intelligent Adaptive Control*, L. C. Jain and C.W. de Silva (editors), CRC Press, Boca Raton, FL, 1999.

SB47. Wu, Q.M.J., Stanley, K., and de Silva, C.W., "Neural Control Systems and Applications", *Intelligent Adaptive Control*, L. C. Jain and C.W. de Silva (editors), CRC Press, Boca Raton, FL, 1999.

SB48. Karray, F.O. and de Silva, C.W., "Learning and Adaptation in Complex Dynamic Systems", *Intelligent Adaptive Control*, L. C. Jain and C.W. de Silva (editors), CRC Press, Boca Raton, FL, 1999.

SB49. Filippidis, A., Jain, L.C., and de Silva, C.W., "Intelligent Control Techniques", *Intelligent Adaptive Control*, L. C. Jain and C.W. de Silva (editors), CRC Press, Boca Raton, FL, 1999.

SB50. De Silva, C.W., "Intelligent Restructuring of Automated Production Systems", *Fuzzy Logic and Its Applications to Engineering, Information Sciences, and Intelligent Systems*, Z. Bien and K.C. Min (editors), Kluwer Academic Publishers, Boston, MA, 1995.

SB51. De Silva, C.W., "Considerations of Hierarchical Fuzzy Control" *Theoretical Aspects of Fuzzy Control*, H.T. Nguyen, M. Sugeno, R.M. Tong, and R.R. Yager (editors), J. Wiley & Sons, New York, 1995.

JOURNAL PUBLICATIONS

(a) Modeling and Control of Flexible Structures including Vehicles and Guideways

J1. Lang, H., Wu, K., Zhu, J., and de Silva, C.W., "Semi-empirical Modeling and Parameter Analysis for the Development of a High Speed Resistance-welding Process," *International Journal of Modelling and Simulation*, pp. 1-9, 2017.

J2. Khoshnoud, F., Zhang, Y., Shimura, R., Shahba, A., Jin, G., Pissanidis, G., Chen, Y.K., and de Silva, C.W., "Energy Regeneration from Suspension Dynamic Modes and Self-powered Actuation", *IEEE/ASME Transactions on Mechatronics*, Vol. 20, No. 5, pp. 2513-2524, 2015.

J3. Tabatabaei, S.M.K., Behbahani, S., and de Silva, C.W., "Design Evolution of an Intelligent Controller for Chatter Vibration using Structured AIS," *International Journal of Control and Intelligent Systems*, Vol. 43, No. 2, pp. 88-94, 2015.

J4. De Silva, C.W. and Pourazadi, S., "Some Generalizations of Linear-graph Modeling for Dynamic Systems," *International Journal of Control*, Vol. 86, No. 10, pp. 1990-2005, 2013.

J5. Fan, T. and de Silva, C.W., "Dynamic Modeling and Model Predictive Control of Flexible-Link Manipulators," *International Journal of Robotics and Automation*, Vol. 23, No. 4, pp. 227-234, 2008.

J6. Sun, J., Poo, A.N., Ang, M.H., Hong, G.S., de Silva, C.W., and Tan, K.K., "Design of Vibration Controllers for Flexible Beams Using the Mechatronic Design Quotient (MDQ) Approach," *Journal of Vibration and Control*, Vol. 13, No. 1, pp. 65-94, 2007.

J7. De Silva, C.W., "Use of Frequency Domain Concepts in the Analysis and Design of Mechanical Vibrating Systems," *The International Journal of Mechanical Engineering Education*, Vol. 34, No. 3, pp. 233-255, 2006.

J8. De Silva, C.W., "Control System Methodology for Vibration Suppression in Machinery and Structures," *Journal of Structural Engineering*, Vol. 33, No. 1, pp. 1-12, 2006.

J9.   Min, B., Misra, A.K., Cyril, X., Modi, V.J., and de Silva, C.W., "Object Oriented Modeling of the Dynamics of Flexible Multibody Systems," *Advances in the Astronautical Sciences*, Vol. 103, Part III, pp. 2385-2404, 1999.

J10.   Caron, M., Modi, V.J., Pradhan, S., de Silva, C.W., and Misra, A.K., "Planar Dynamics of Flexible Manipulators with Slewing Deployable Links," *Journal of Guidance, Control, and Dynamics*, Vol. 21, No. 4, pp. 572-580, July 1998.

J11.   De Silva, C.W., "An Algorithm for the Optimal Design of Passive Vibration Controllers for Flexible Systems," *Journal of Sound and Vibration*, Vol. 74 (4), pp. 495-502, 1982.

J12.   De Silva, C.W. and Wormley, D.N., "Torsional Analysis of Cutout Beams," *Journal of the Structural Division*, Trans. ASCE, Vol. 106 (ST9), pp. 1933-1946, 1980.

J13.   De Silva, C.W., Buyukozturk, O. and Wormley, D.N., "Postcracking Compliance of RC Beams," *Journal of the Structural Division*, Trans. ASCE, Vol. 105 (ST1), pp. 35-51, 1979.

J14.   De Silva, C.W., and Wormley, D.N., "Material Optimization in a Torsional Guideway Transit System," *Journal of Advanced Transportation*, Vol. 13 (3), pp. 41-60, 1979.

J15.   De Silva, C.W., "Dynamic Beam Model with Internal Damping, Rotatory Inertia and Shear Deformation," *AIAA Journal*, Vol. 14 (5), pp. 676-680, 1976.

J16.   De Silva, C.W., "Optimal Estimation of the Response of Internally Damped Beams to Random Loads in the Presence of Measurement Noise," *Journal of Sound and Vibration,* Vol. 47(4), pp. 485-493, 1976.

J17.   Van De Vegte, J., and de Silva, C.W., "Design of Passive Vibration Controls for Internally Damped Beams by Modal Control Techniques," *Journal of Sound and Vibration,* Vol. 45(3), pp. 417-425, 1976.

J18.   De Silva, C.W., "A Technique to Model the Simply Supported Timoshenko Beam in the Design of Mechanical Vibrating Systems," *International Journal of Mechanical Sciences,* Vol. 17, pp. 389-393, 1975.

(b) Monitoring, Diagnosis, Dynamic Testing and Qualification of Instruments and Machinery

J19.   Xia, M., Li, T., Xu, L., Liu, L, and de Silva, C.W., "Fault Diagnosis for Rotating Machinery Using Multiple Sensors and Convolutional Neural Networks," *IEEE/ASME Transactions on Mechatronics*, Vol. 23, No. 1, pp. 101-110, 2018.

J20.   Abid, A., Khan, M.T., and de Silva, C.W., "Layered and Real-valued Negative Selection Algorithm for Fault Detection," *IEEE Systems Journal*, Vol. PP, No. 99, pp. 1-10, 2017.

J21.   Xia, M., Li, T., Liu, L., Xu, L., and de Silva, C.W., "An Intelligent Fault Diagnosis Approach with Unsupervised Feature Learning by Stacked Denoising Autoencoder," *IET Journal of Science, Measurement & Technology*, Vol. 11, No. 6, pp. 687-695, 2017.

J22.   Xia, M., Li, T., Zhang, Y., and de Silva, C.W., "Closed-loop Design Evolution of Engineering Systems using Condition Monitoring through Internet of Things and Cloud Computing," *Journal of Computer Networks*, Vol. 101, pp. 5-18, 2016.

J23.   Lu, L., Yan, J., and de Silva, C.W., "Dominant Feature Selection for the Fault Diagnosis of Rotary Machines Using Modified Genetic Algorithm and Empirical Mode Decomposition," *Journal of Sound and Vibration*, Vol. 344, pp. 464-483, 2015.

J24.   De Silva, C.W., Xiao, S., Li, M., and de Silva, C.N., "Telemedicine—Remote Sensory Interaction with Patients for Medical Evaluation and Diagnosis," *International Journal of Control and Intelligent Systems*, Vol. 41, No. 4, pp. 1-12, 2013.

J25. De Silva, C.W., Xiao, S., Li, M., and de Silva, C.N., "Sensory Signal Processing Issues in a Telemedicine System," *International Journal of Information Acquisition*, Vol. 9, No. 2, pp. 1350013:1-11, 2013.

J26. Narayanan, A.S., Lam, W.C., Tan, K. K., Koh, C.H., and de Silva, C.W., "A Video Conferencing Solution for Telehealth Applications," *International Journal of Control and Intelligent Systems*, Vol. 41, No. 3, pp. 152-160, 2013.

J27. Raman, S. and de Silva, C.W., "Sensor-fault Tolerant Condition Monitoring of an Industrial Machine," *International Journal of Information Acquisition*, Vol. 9, No. 1, pp. 1-16, 2013.

J28. De Silva, C.W. and Wong, K., "On-Line Fault Identification and Fault-Tolerant Control of a Multi-Module Manipulator," *International Journal of Robotics and Automation*, Vol. 25, No. 3, pp. 217-228, 2010.

J29. Razavi, B. and de Silva, C.W., "Condition Monitoring in a Hydraulic System of an Industrial Machine Using Unscented Kalman Filter," *International Journal of Information Acquisition*, Vol. 7, No. 3, pp. 177-192, September 2010.

J30. Pirmoradi, F., Sassani, F., and de Silva, C.W., "Fault Detection and Diagnosis in a Spacecraft Attitude Determination System," *Acta Astronautica*, Vol. 65, pp. 710-729, 2009.

J31. Lang, H. and de Silva, C.W., "Fault Diagnosis of an Industrial Machine Through Sensor Fusion," *International Journal of Information Acquisition*, Vol. 5, No. 2, pp. 93-110, June 2008.

J32. Huang, S.N., Tan, K.K., Wong, Y.S., de Silva, C.W., Goh, H.L., and Tan, W.W., "Tool Wear Detection and Fault Diagnosis Based on Cutting Force Monitoring," *International Journal of Machine Tools and Manufacture*, Vol. 47, No. 3-4, March 2007 (**2nd most downloaded paper, Science Digest**).

J33. Tang, K.Z., Tan, K.K., de Silva, C.W., Lee, T.H., and Chin, S.J., "Monitoring and Suppression of Vibration in Precision Machines," *Journal of Intelligent and Fuzzy Systems*, Vol. 11, pp. 33-52, December 2001.

J34. De Silva, C.W., Singh, M., and Zaldonis, J., "Improvement of Response Spectrum Specifications in Dynamic Testing," *Journal of Engineering for Industry*, Trans. ASME, Vol. 112, No. 4, pp. 384-387, November 1990.

J35. De Silva, C.W., "Optimal Input Design for the Dynamic Testing of Mechanical Systems," *Journal of Dynamic Systems, Measurement, and Control*, Trans. ASME, Vol. 109(2), pp. 111-119, June 1987.

J36. De Silva, C.W., Henning, S.J., and Brown, J.D., "Random Testing with Digital Control - Application in the Distribution Qualification of Microcomputers," *The Shock and Vibration Digest*, Vol. 18 (9), pp. 3-13, September 1986.

J37. De Silva, C.W., "Computer-Automated Failure Prediction in Mechanical Systems Under Dynamic Loading," *The Shock and Vibration Digest*, Vol. 17 (8), pp. 3-12, August 1985.

J38. De Silva, C.W., "Hardware and Software Selection for Experimental Modal Analysis," *The Shock and Vibration Digest*, Vol. 16 (8), pp. 3-10, August 1984.

J39. De Silva, C.W., "A Dynamic Test Procedure for Improving Seismic Qualification Guidelines," *Journal of Dynamic Systems, Measurement, and Control*, Trans. ASME, Vol. 106 (2), pp. 143-148, 1984.

J40. De Silva, C.W. and Palusamy, S.S. "Experimental Modal Analysis - A Modeling and Design Tool," *Mechanical Engineering*, ASME, Vol. 106 (6), pp. 56-65, June 1984.

J41. De Silva, C.W., "On the Modal Analysis of Discrete Vibratory Systems," *International Journal of Mechanical Engineering Education*, Vol. 12 (1), pp. 35-44, 1984.

J42. De Silva, C.W., "Shaker Test-Fixture Design," *Measurements and Control*, Vol. 17(6), pp. 152-155, Dec. 1983.

J43. De Silva, C.W., "Selection of Shaker Specifications in Seismic Qualification Tests," *Journal of Sound and Vibration*, Vol. 91 (2), pp. 21-26, 1983.

J44. De Silva, C.W., "A Note on the Identification of Linear Systems with Unknown Inputs from Output Data," *The Arabian Journal for Science and Engineering*, John Wiley & Sons, Vol. 7 (3), pp. 301-302, 1982.

J45. De Silva, C.W., "Real-Time Failure Detection of Aircraft Engine Output Sensors," *The Arabian Journal for Science and Engineering*, John Wiley & Sons, Vol. 7 (1), pp. 45-53, 1982.

J46. De Silva, C.W., "Matrix Eigenvalue Problem of Multiple-Shaker Testing," J*ournal of the Engineering Mechanics Division*, Trans. ASCE, Vol. 108 (EM2), pp. 457-461, 1982.

J47. De Silva, C.W., Loceff, F. and Vashi, K.M., "Consideration of an Optimal Procedure for Testing the Operability of Equipment under Seismic Disturbances," *Shock and Vibration Bulletin*, Vol. 50(5), pp. 149-158, 1980.

J48. De Silva, C.W., "Seismic Qualification of Electrical Equipment Using a Uniaxial Test," *Earthquake Engineering and Structural Dynamics*, Vol. 8, pp. 337-348, 1980.

(c) Control System Instrumentation, particularly Sensors and Actuators

J49. Shu, T., Xia, M., Chen, J., and de Silva, C.W., "An Energy Efficient Adaptive Sampling Algorithm in a Sensor Network for Automated Water Quality Monitoring", *Sensors*, Vol. 17, No. 11, pp. 2551 1-14, 2017.

J50. Khoshnoud, F., Esat, I.I., de Silva, C.W., McKerns, M.M., and Owhadi, H., "Self-powered Dynamic Systems in the Framework of Optimal Uncertainty Quantification", *Journal of Dynamic Systems, Measurement, and Control, Transactions of ASME*, Vol. 139, No. 9, pp. 1005 1-13, 2017.

J51. Lee, M.F.R., Chiu, F.H.S., de Silva, C.W., and Shih, C.Y.,A., "Intelligent Navigation and Micro-Spectrometer Content Inspection System for a Homecare Mobile Robot," *International Journal of Fuzzy Systems*, Vol. 16, No. 3, pp. 389-399, 2014.

J52. Khoshnoud, F., Sundar, D.B., Badi, M.N.M., Chen, Y.K., Calay, R.K., and de Silva, C.W., "Energy Harvesting from Suspension Systems Using Regenerative Force Actuators," *International Journal of Vehicle Noise and Vibration*, pp. 294-311, Vol. 9, No. 3/4, 2013.

J53. Er, P.V., Tan, K. K., Narayanan, A.S., de Silva, C.W., and Lim, H. Y., "Development of Digital Pseudo Binaural Hearing Aid," *International Journal of Control and Intelligent Systems*, Vol. 41, No. 3, pp. 161-168, 2013.

J54. Ganji, M., Behbahani, S., and de Silva, C.W., "Integrated and Object-Oriented Mechatronic Modeling of Piezoelectric Transducers Using Linear Graphs," *International Journal of Modeling and Simulation*, Vol. 33, No. 1, pp. 15-24, 2013.

J55. Khoshnoud, F. and de Silva, C.W., "Recent Advances in MEMS Sensor Technology—Thermo-fluid and Electro-magnetic Devices," *IEEE Instrumentation and Measurement*, Vol. 15, No. 3, pp. 16-20, 2012.

J56. Khoshnoud, F. and de Silva, C.W., "Recent Advances in MEMS Sensor Technology—Mechanical Applications," *IEEE Instrumentation and Measurement*, Vol. 15, No. 2, pp. 14-24, 2012.

J57. Khoshnoud, F. and de Silva, C.W., "Recent Advances in MEMS Sensor Technology—Biomedical Applications," *IEEE Instrumentation and Measurement*, Vol. 15, No. 1, pp. 8-14, 2012. **(Most accessed article in February 2013)**

J58. Baranwal, M., Khan, M.T., and de Silva, C.W., "Abnormal Motion Detection in Real Time Using Video Surveillance and Body Sensors," *International Journal of Information Acquisition*, Vol. 8, No. 2, pp. 103-116, 2011.

J59. Khoshnoud, F., Owhadi, H., and de Silva, C.W., "Stochastic Simulation of Energy Extraction with an Optically Controlled Nano-Electromechanical Engine," *International Journal of Modeling and Simulation*, Vol. 31, No. 2, pp. 1-9, 2011.

J60. De Silva, C.W. and Wang, Y., "Control Output Devices—Actuators and Data Display Devices for Process Automation," *IEEE Instrumentation and Measurement*, Vol. 11, No. 1, pp. 38-45, Feb. 2008.

J61. Tang, P.L. and de Silva, C.W., "Stability Validation of a Constrained Model Predictive Networked Control System with Future Input Buffering," *International Journal of Control*, Vol. 80, No, 12, pp. 1954-1970, December 2007.

J62. Tang, P.L. and de Silva, C.W., "Compensation for Transmission Delays in an Ethernet-based Control Network Using Variable-horizon Predictive Control," *IEEE Transactions on Control Systems Technology*, Vol. 14, No. 4, pp. 707-718, 2006.

J63. Gu, J.S. and de Silva, C.W., "Development and Implementation of a Real-Time Open-Architecture Control System for Industrial Robot Systems," *Engineering Applications of Artificial Intelligence, IFAC International Journal of Intelligent Real-Time Automation*, Vol. 17, No. 1, pp. 469-483, 2004.

J64. De Silva, C.W., "Sensory Information Acquisition for Monitoring and Control of Intelligent Mechatronic Systems," *International Journal of Information Acquisition*, Vol. 1, No. 1, pp.89-99, March 2004.

J65. Jain, A., de Silva, C.W., and Wu, Q.M.J., "Intelligent Fusion of Sensor Data for Product Quality Assessment in a Fish-cutting Machine," *International Journal of Control and Intelligent Systems*, Vol. 32, No. 2, pp. 89-98, 2004.

J66. Omar, F. and de Silva, C.W., "High-Speed Model-Based Sensing of Complex Objects with Application in Industrial Processes," *Measurement, Journal of the International Measurement Confederation*, Vol. 33, pp. 23-33, 2003.

J67. Wu, Q.M.J., Lee, M.F.R., and de Silva, C.W., "An Imaging System with Structured Lighting for On-line Generic Sensing of Three-Dimensional Objects," *Sensor Review: The Intl. Journal of Sensing for Industry*, Vol. 22, No. 1, pp. 46-50, 2002.

J68. Saliba, M.A. and de Silva, C.W., "The Design, Construction and Functional Analysis of an Innovative Robotic Gripper," *Engineer Today*, Vol. 8, pp. 19-23, April 2000.

J69. Croft, E.A., de Silva, C.W., and Kurnianto, S., "Sensor Technology Integration in an Intelligent Machine for Herring Roe Grading," *IEEE/ASME Transactions on Mechatronics*, Vol. 1, No. 3, pp. 204-215, September 1996.

J70. De Silva, C.W., Gamage, L.B., and Gosine, R.G., "An Intelligent Firmness Sensor for an Automated Herring Roe Grader," *International Journal of Intelligent Automation and Soft Computing*, Vol. 1, No. 1, pp. 99-114, 1995.

J71. De Silva, C.W., Schultz, M., and Dolejsi, E., "Kinematic Analysis and Design of a Continuously-Variable Transmission," *Mechanism and Machine Theory*, Vol. 29(1), pp. 149-167, January 1994.

J72. De Silva, C.W., Schultz, M., and Dolejsi, E., "Gear Transmission with Continuously-Variable Speed Ratio," *Measurements and Control*, Vol. 25, No. 6, pp. 83-87, December 1991.

J73. De Silva, C.W. and Hankins, W.W., "Dynamic Evaluation of the NASA-ORNL Traction-Drive Joint," *Journal of Guidance, Control, and Dynamics,* Vol. 14, No. 3, pp. 688-692, June 1991.

J74. De Silva, C.W., "Modeling and Control of Stepper Motors," *Measurements and Control*, Vol. 24, No. 5, pp. 140-145, October 1990.

J75. De Silva, C.W., "Design Equations for the Tooth Distribution of Stepping Motors," *IEEE Transactions on Industrial Electronics*, Vol. 37, No. 2, pp. 184-186, April 1990.

J76. De Silva, C.W., Price, T.E., and Kanade, T., "A Torque Sensor for Direct-Drive Manipulators," *Journal of Engineering for Industry*, Trans. ASME, Vol. 109 (2), pp. 122-127, May 1987.

J77. De Silva, C.W., "The Digital Processing of Acceleration Measurements for Modal Analysis," *The Shock and Vibration Digest*, Vol. 18 (10), pp. 3-10, October 1986.

J78. De Silva, C.W., "Motion Sensors for Industrial Robots," *Mechanical Engineering, ASME,* Vol. 107 (6), pp. 40-51, June 1985.

(d) Intelligent Control of Complex Systems

J79. Gao, S. and de Silva, C.W., "A Modified Estimation Distribution Algorithm Based on Extreme Elitism," *Biosystems*, Vol. 150, pp. 149-166, 2016.

J80. Kim, D.W., Lee, H.D., de Silva, C.W., and Park, J.W., "Service-provider intelligent humanoid robot using TCP/IP and CORBA," *International Journal of Control, Automation and Systems*, Volume 14, Issue 2, pp 608–615, April 2016.

J81. Khoshnoud, F., de Silva, C.W., and Esat, I.I., "Bioinspired Psi Intelligent Control for Autonomous Dynamic Systems," *International Journal of Control and Intelligent Systems*, Vol. 43, No. 4, pp. 205-211, 2015.

J82. Khan, M.T., Qadir, M.U., Abid, A., Nasir, F., and de Silva, C.W., "Robot Fault Detection using an Artificial Immune System (AIS)," *International Journal of Control and Intelligent Systems*, Vol. 43, No. 2, pp. 107-117, 2015.

J83. Qazi, A.J., de Silva, C.W., Khan, A., and Khan, M.T., "Performance Analysis of a Semiactive Suspension System with Particle Swarm Optimization and Fuzzy Logic Control," *Scientific World Journal*, Vol. 2014, ID 174102, pp. 1-12, 2014 (http://dx.doi.org/10.1155/2014/174102).

J84. Khan, M.T. and de Silva, C.W., "Multi-Robot Cooperation Using an Immune System Model for Multi-Object Transportation," *International Journal of Robotics and Automation*, Vol. 28, No.1, pp. 42-56, 2013.

J85. Jiao, S. and de Silva, C.W., "An Approach to Parameter Identification Using Linear Graphs and Improved Particle Swarm Optimization," *International Journal of Modeling and Simulation*, Vol. 32, No. 3, pp. 185-191, 2012.

J86. De Silva, C.W., "Zadeh-MacFarlane-Jamshidi Theorems on Decoupling of a Fuzzy Rule Base," *Scientia Iranica*, Part D, Vol. 18, No. 3, pp. 611-616, 2011.

J87. Kim, D., Seo, S.J., de Silva, C.W., and Park, G.T., "Evolutionary Design of Sugeno-type Fuzzy System for Modeling Humanoid Robots," *International Journal of Systems Science*, Vol. 41, No. 7, pp. 875-888, July 2010.

J88. Wang, Y. and de Silva, C.W., "Sequential Q-learning with Kalman Filtering for Multi-robot Cooperative Transportation," *IEEE/ASME Transactions on Mechatronics*, Vol. 15, No. 2, pp. 261-268, 2010.

J89. Wierzbicki, M. and de Silva, C.W., "Design Tools for Foldable Structures with Application of Fuzzy Logic," *International Journal of Architectural Computing*, Vol. 5, No. 4, pp. 645-662, 2008.

J90. Rahbari, R., Leach, B.W., Dillon, J., and de Silva, C.W., "Expert System for an INS/DGPS Integrated Navigator Installed in a Bell 206 Helicopter," *Engineering Applications of Artificial Intelligence, IFAC International Journal of Intelligent Real-Time Automation*, Vol. 18, No. 3, pp. 353-361, 2005.

J91. De Silva, C.W., "The Role of Soft Computing in Intelligent Machines," *Philosophical Transactions of the Royal Society*, Series A, UK, Vol. 361, No. 1809, pp. 1749-1780, 2003 (By Invitation).

J92. Tang, P.L., de Silva, C.W., and Poo, A.N., "Intelligent Adaptive Control of an Industrial Fish Cutting Machine," *Transactions of the South African Institute of Electrical Engineers*, Vol. 93, No. 2, pp. 60-72, June 2002.

J93. Goulet, J.F., de Silva, C.W., Modi, V.J., and Misra, A.K., "Hierarchical Knowledge-Based Control of a Deployable Orbiting Manipulator," *Acta Astronautica*, Vol. 50, N0. 3, pp. 139-148, 2002.

J94. Rahbari, R. and de Silva, C.W., " Comparison of Two Inference Methods for P-type Fuzzy Logic Control through Experimental Investigation Using a Hydraulic Manipulator," *IFAC International Journal Engineering Applications of Artificial Intelligence*, Vol. 14, No. 6, pp. 763-784, 2001.

J95. Tang, P.L., Poo, A.N., and de Silva, C.W., "Knowledge-Based Extension of Model-Referenced Adaptive Control with Application to an Industrial Process," *Journal of Intelligent and Fuzzy Systems*, Vol. 10, No. 3,4, pp. 159-183, 2001.

J96. Goulet, J.F., de Silva, C.W., Modi, V.J., and Misra, A.K., "Hierarchical Fuzzy Logic Control of a Manipulator with Slewing and Deployable Links," *Journal of Vibration and Control*, Vol. 7, pp. 1049-1086, 2001.

J97. Goulet, J.F., de Silva, C.W., Modi, V.J., and Misra, A.K., "Hierarchical Control of a Space-Based Deployable Manipulator Using Fuzzy Logic," *AIAA Journal of Guidance, Control, and Dynamics*, Vol. 24, No. 2, pp. 395-405, 2001.

J98. Hu, B.G., Gosine, R.G., Cao, L.X., and de Silva, C.W., "Application of a Fuzzy Classification Technique in Computer Grading of Fish Products," *IEEE Trans. on Fuzzy Systems*, Vol. 6, No. 1, pp. 144-152, February 1998.

J99. De Silva, C.W., "Intelligent Control of Robotic Systems," *International Journal of Robotics and Autonomous Systems*, Vol. 21, pp. 221-237, 1997.

J100. Wu, Q.M. and de Silva, C.W., "Dynamic Switching of Fuzzy Resolution in Knowledge-Based Self-Tuning Control," *Journal of Intelligent and Fuzzy Systems*, Vol. 4, No. 1, pp. 75-87, 1996.

J101. De Silva, C.W., "Applications of Fuzzy Logic in the Control of Robotic Manipulators," *Fuzzy Sets and Systems*, Vol. 70, No. 2-3, pp. 223-234, 1995.

J102. De Silva, C.W. and Gu, J., "An Intelligent System for Dynamic Sharing of Workcell Components in Process Automation," *IFAC International Journal of Engineering Applications of Artificial Intelligence*, Vol. 7, No. 5, pp. 571-586, 1994.

J103. De Silva, C.W., "A Criterion for Knowledge Base Decoupling in Fuzzy-Logic Control Systems," *IEEE Transactions on Systems, Man, and Cybernetics*, Vol. 24, No. 10, pp. 1548-1552, October 1994.

J104. Lee, T.H., Yue, P.K., and de Silva, C.W., "Neural Networks Improve Control," *Measurements and Control*, Vol. 28, No. 4, pp. 148-153, September 1994.

J105. De Silva, C.W. and Lee, T.H., "Fuzzy Logic in Process Control," *Measurements and Control,* Vol. 28, No. 3, pp. 114-124, June 1994.

J106. De Silva, C.W. and Lee, T.H., "Knowledge-Based Intelligent Control," *Measurements and Control*, Vol. 28, No. 2, pp. 102-113, April 1994.

J107. De Silva, C.W., "An Analytical Framework for Knowledge-Based Tuning of Servo Controllers," *IFAC International Journal of Engineering Applications of Artificial Intelligence*, Vol. 4, No. 3, pp. 177-189, 1991.

J108. De Silva, C.W., "A Two-Level Servo Structure with Knowledge-Based Tuning," *IFAC International Journal of Engineering Applications of Artificial Intelligence*, Vol. 3, No. 3, pp. 180-185, September 1990.

J109. De Silva, C.W., and MacFarlane, A.G.J., "Knowledge-Based Control Approach for Robotic Manipulators," *International Journal of Control*, Vol. 50, No. 1, pp. 249-273, 1989.

(e) Invited Articles on Industrial Control

J110. Karray, F. and de Silva, C.W., "Editorial: Smart Mechatronic Systems and Embedded Design," *IEEE/ASME Transactions on Mechatronics*, Vol. 13, No. 1, pp. 1-2, Feb. 2008.

J111. De Silva, C.W., "Miscellaneous Sensors", *Measurements and Control*, Vol. 34, No. 6, pp. 49-58, December 2000.

J112. De Silva, C.W., "Capacitive and Piezoelectric Sensors," *Measurements and Control*, Vol. 34, No. 5, pp. 49-63, October 2000.

J113. De Silva, C.W., "Inductive Motion Transducers," *Measurements and Control*, Vol. 34, No. 4, pp. 65-76, September 2000.

J114. De Silva, C.W., "Differential Transformers," *Measurements and Control*, Vol. 34, No. 3, pp. 49-60, June 2000.

J115. De Silva, C.W., "Potentiometric Transducer," *Measurements and Control*, Vol. 34, No. 2, pp. 49-61, April 2000.

J116. De Silva, C.W., "Instrument Error Analysis, Part B," *Measurements and Control*, Vol. 34, No. 1, pp. 49-65, February 2000.

J117. De Silva, C.W., "Instrument Error Analysis, Part A," *Measurements and Control*, Vol. 33, No. 5, pp. 53-62, October 1999.

J118. De Silva, C.W., "Performance Specification," *Measurements and Control*, Vol. 33, No. 4, pp. 85-105, September 1999.

J119. De Silva, C.W., "Component Interconnection and Matching," *Measurements and Control*, Vol. 33, No. 3, pp. 61-75, June 1999.

J120. De Silva, C.W., "Frequency Models and Bandwidth," *Measurements and Control*, Vol. 33, No. 2, pp. 75-88, April 1999.

J121. De Silva, C.W., "Control System Instrumentation," *Measurements and Control*, Vol. 33, No. 1, pp. 69-82, February 1999.

J122. De Silva, C.W., "Robot Workcells and Applications," *Measurements and Control*, Vol. 30, No. 6, pp. 77-86, December 1996.

J123. De Silva, C.W., "Robot Control Architectures," *Measurements and Control*, Vol. 30, No. 5, pp. 85-92, October 1996.

J124. De Silva, C.W., "Application of Nonlinearity Compensation," *Measurements and Control*, Vol. 30, No. 4, pp. 125-135, September 1996.

J125. De Silva, C.W., "Feedforward Nonlinearity Compensation," *Measurements and Control*, Vol. 30, No. 3, pp. 90-95, June 1996.

J126. De Silva, C.W., "End-Effector Trajectory Generation," *Measurements and Control*, Vol. 30, No. 2, pp. 101-109, April 1996.

J127. De Silva, C.W., "Trajectory Design and Optimization," *Measurements and Control*, Vol. 30, No. 1, pp. 109-113, February 1996.

J128. De Silva, C.W., "Lagrangian and Newton-Euler Methods," *Measurements and Control*, Vol. 29, No. 6, pp. 69-73, December 1995.

J129. De Silva, C.W., "Control Principles of Robotics: Kinematics and Kinetics," *Measurements and Control*, Vol. 29, No. 5, pp. 77-83, October 1995.

J130. De Silva, C.W., "Robot Dynamics," *Measurements and Control*, Vol. 29(4), pp. 133-141, September 1995.

J131. De Silva, C.W., "Dynamics and Control of Robots," *Measurements and Control*, Vol. 29, No. 3, pp. 87-92, June 1995.

J132. De Silva, C.W. and Gamage, L.B., "Programming Language Comparison," *Measurements and Control,* Vol. 24, No. 4, pp. 118-127, September 1993.

J133. De Silva, C.W. and Gamage, L.B., "Some Useful Features of C," *Measurements and Control,* Vol. 27, No. 3, pp. 86-90, June 1993.

J134. De Silva, C.W. and Gamage, L.B., "File Handling and Input/Output," *Measurements and Control,* Vol. 27, No. 2, pp. 77-83, April, 1993.

J135. De Silva, C.W. and Gamage, L.B., "Processing, Compiling, Linking," *Measurements and Control,* Vol. 27, No. 1, pp. 93-97, February 1993.

J136. De Silva, C.W. and Gamage, L.B., "Storage Classes," *Measurements and Control,* Vol. 26, No. 6, pp. 72-77, December 1992.

J137. De Silva, C.W. and Gamage, L.B., "Constructed Data Types," *Measurements and Control,* Vol. 26, No. 5, pp. 80-86, October 1992.

J138. De Silva, C.W. and Gamage, L.B., "Functions," *Measurements and Control,* Vol. 26, No. 4, pp. 120-129, September 1992.

J139. De Silva, C.W. and Gamage, L.B., "Arrays," *Measurements and Control*, Vol. 26(3), pp. 78-83, June 1992.

J140. De Silva, C.W. and Gamage, L.B., "Pointers and Other Operators," *Measurements and Control*, Vol. 26, No. 2, pp. 70-75, April 1992.

J141. De Silva, C.W. and Gamage, L.B., "Control Structures," *Measurements and Control*, Vol. 26, No. 1, pp. 85-91, February 1992.

J142. De Silva, C.W. and Gamage, L.B., "Data Types and Operators," *Measurements and Control*, Vol. 25, No. 6, pp. 66-71, December 1991.

J143. De Silva, C.W. and Gamage, L.B., "Introduction to C Programming," *Measurements and Control*, Vol. 25, No. 5, pp. 85-90, October 1991.

J144. De Silva, C.W., "Frequency Domain Models," *Measurements and Control*, Vol. 22, No. 5, pp. 131-141, October 1988.

J145. De Silva, C.W., "Transfer Function Models," *Measurements and Control*, Vol. 22, No. 4, pp. 157-169, September 1988.

J146. De Silva, C.W., "Bond Graphs," *Measurements and Control*, Vol. 22(3), pp. 130-141, June 1988.

J147. De Silva, C.W., "State Models from Linear Graphs," *Measurements and Control*, Vol. 22, No. 2, pp. 122-127, April 1988.

J148. De Silva, C.W., "Through and Across Variables," *Measurements and Control*, Vol. 22, No. 1, pp. 120-123, February 1988.

J149. De Silva, C.W., "Linear Graphs," *Measurements and Control*, Vol. 21(6), pp. 102-107, Dec. 1987.

J150. De Silva, C.W., "State Models," *Measurements and Control*, Vol. 21(5), pp. 117-121, October 1987.

J151. De Silva, C.W., "Linear Algebra for Modeling Dynamic Systems," *Measurements and Control*, Vol. 21, No. 4, pp. 165-171, September 1987.

J152. De Silva, C.W., "Control Systems Modeling Terminology," *Measurements and Control*, Vol. 21, No. 3, pp. 125, June 1987.

J153. De Silva, C.W., "Mass/Force Measurement, Load Cells," *Measurements and Control*, Vol. 20, No. 5, pp. 230-231, October 1986.

J154. De Silva, C.W., "Counters/Frequency Tachometers," *Measurements and Control*, Vol. 20(2), pp. 201, April 1986.

J155. De Silva, C.W., "Torque Measurement," *Measurements and Control*, Vol. 20(1), pp. 302-303, February 1986.

J156. De Silva, C.W., "Motor Controllers," *Measurements and Control*, Vol. 20(1), pp. 271-274, February 1986.

J157. De Silva, C.W., "Stability Analysis," *Measurements and Control*, Vol. 19(6), pp. 118-124, December 1985.

J158. De Silva, C.W., and Aronson, M.H., "Response of Common Networks," *Measurements and Control*, Vol. 19, No. 5, pp. 125-129, October 1985.

J159. De Silva, C.W., and Aronson, M.H., "Lead and Lag Networks," *Measurements and Control*, Vol. 19, No. 4, pp. 182-186, September 1985.

J160. De Silva, C.W., and Aronson, M.H., "The S-Domain and Plane," *Measurements and Control*, Vol. 19, No. 3, pp. 134-139, June 1985.

J161. De Silva, C.W., and Aronson, M.H., "Transfer Functions, Poles, and Zeros," *Measurements and Control*, Vol. 19, No. 2, pp. 134-137, April 1985.

J162. De Silva, C.W., and Aronson, M.H., "Oscillation and Stability Criteria," *Measurements and Control*, Vol. 19, No. 1, pp. 125-131, February 1985.

J163. De Silva, C.W., and Aronson, M.H., "Reset and Rate Control," *Measurements and Control*, Vol. 18, No. 5, pp. 133-145, October 1984.

J164. De Silva, C.W., and Aronson, M.H., "On-Off and Proportional Control," *Measurements and Control*, Vol. 18, No. 4, pp. 165-170, September 1984.

J165. De Silva, C.W., and Aronson, M.H., "Response Analysis by Transform," *Measurements and Control*, Vol. 18, No. 3, pp. 149-154, June 1984.

J166. De Silva, C.W., "Process Variables," *Measurements and Control*, Vol. 18(2), pp. 149-156, April 1984.

(f) Education and Book Reviews

J167. De Silva, C.W., "Foreword: Special Issue on Sensor Network on Building Monitoring: from Theory to Real Application," *Electronic Journal of Structural Engineering*, Vol. 9, pg. i, Dec. 2009.

J168. De Silva, C.W., "Book Review: Evolutionary Robotics: From Algorithms to Implementations," *IEEE Computational Intelligence*, Vol. 2, No. 2, pp. 70-71, May 2007 (By Invitation).

J169. De Silva, C.W., "Book Review: Biomimicry for Optimization, Control, and Automation," *SIAM Review*, Vol. 47, No. 4, pp. 824-827, 2005 (By Invitation).

J170. De Silva, C.W., "Book Review: Static and Dynamic Neural Networks," *IIE Transactions on Operations Engineering*, Vol. 37, No. 7, pp. 681-682, July 2005 (By Invitation).

J171. De Silva, C.W., "Book Review: Identification and Control of Mechanical Systems," *Canadian Journal of Civil Engineering*, Vol. 29, No. 3, pp. 537, 2002 (By Invitation).

J172. De Silva, C.W., "Book Review: Precision Motion Control—Design and Implementation," *International Journal of Robust and Nonlinear Control*, Vol. 12, No. 7, pp. 621-623, 2002 (By Invitation).

J173. De Silva, C.W., "Book Review: Vibration Measurement by G. Buzdugan, E. Mihallescu, and M. Rades," *The Shock and Vibration Digest*, Vol. 21, pp. 14, 1989 (By Invitation).

J174. De Silva, C.W., "In Search of a Meaning for Order," *International Journal of Mechanical Engineering Education*, Vol. 14 (1), pp. 31-43, January 1986.

J175. De Silva, C.W., "Computer: An Obstacle to a Meaningful Engineering Education?," *Engineering Education,* Trans. ASEE, Vol. 71 (4), pp. 304-305, 1981.

J176. De Silva, C.W., "Survey of Microcomputer Education in Mechanical Engineering Departments," *Journal of Dynamic Systems, Measurement, and Control*, Trans. ASME, Vol. 102 (2), pp. 60-61, 1980.

(g) Design and Automation of Industrial Processes

J177. Tabatabaei, S.M.K., Behbahani, S., and de Silva, C.W., "Design Evolution and Synthesis of Multi-domain Engineering Systems Using Artificial Immune System," *Mechatronics*, Vol. 39, pp. 103-112, 2016.

J178. Samarakoon, B., Gamage, L., and de Silva, C.W., "Design Evolution of Engineering Systems Using Bond Graphs and Genetic Programming," *Mechatronics*, Vol. 33, pp. 71-83, 2016.

J179. Tabatabaei,K., Behbahani, S., and de Silva, C.W., "Self-adjusting Multidisciplinary Design of Hydraulic Engine Mount Using Bond Graphs and Inductive Genetic Programming," *Journal Engineering Applications of Artificial Intelligence*, Vol. 48, pp. 32-39, 2016.

J180. Behbahani, S. and de Silva, C.W., "Niching Genetic Scheme with Bond Graphs for Topology and Parameter Optimization of a Mechatronic System," *IEEE/ASME Transactions on Mechatronics*, Vol. 19, No. 1, pp. 269-277,2014.

J181. De Silva, C.W. and Behbahani, S., "A Design Paradigm for Mechatronic Systems," *Mechatronics*, Vol. 23, No. 8, pp. 960-966, 2013.

J182. Behbahani, S. and de Silva, C.W., "Mechatronic Design Evolution Using Bond Graphs and Hybrid Genetic Algorithm with Genetic Programming," *IEEE/ASME Transactions on Mechatronics*, Vol. 18, No. 1, pp. 190-199, Feb. 2013.

J183. De Silva, C.W., "Linear-graph Modeling Paradigms for Mechatronic Systems," *The International Journal of Mechanical Engineering Education*, Vol. 40, No. 4, pp. 305-328, 2012.

J184. Gamage, L.B., de Silva, C.W., and Campos, R. "Design Evolution of Mechatronic Systems through Modeling, On-line Monitoring, and Evolutionary Optimization," *Mechatronics*, Vol. 22, No. 1, pp. 83-94, 2012.

J185. Gamage, L.B. and de Silva, C.W., "Task Scheduling and Management Using Genetic Algorithms with Application in Production Process Optimization," *International Journal of Manufacturing Research*, Vol. 7, No. 3, pp. 273-289, 2012.

J186. Liyanage, A.K. and de Silva, C.W., "Robust 3-D Object Detection and Feature Extraction for Multi-Robot Cooperation," *International Journal of Information Acquisition*, Vol. 8, No. 1, pp. 17-38, March 2011.

J187. De Silva, C.W., "Use of Linear Graphs and Thevenin/Norton Equivalent Circuits in the Modeling and Analysis of Electro-mechanical Systems," *The International Journal of Mechanical Engineering Education*, Vol. 38, No. 3, pp. 204-232, 2010.

J188. Gamage, L.B. and de Silva, C.W., "A System Framework with On-line Monitoring and Evaluation for Design Evolution of Engineering System," *ASME Journal of Computing and Information Science in Engineering*, Vol. 10, pp. 1-6, September 2010.

J189. Sun, J., Poo, A.N., de Silva, C.W., Chew, C.M., Ang, M.H., Hong, G.S., de Silva, C.W, and Tan, K.K., "Optimization of Mechatronic Design Quotient Using Genetic Algorithm in Vibration Controllers for Flexible Beams," *Journal of Vibration and Control*, Vol. 15, No. 11, pp. 1603-1626, 2009.

J190. Behbahani, S. and de Silva, C.W., "System-based and Concurrent Design of a Smart Mechatronic System Using the Concept of Mechatronic Design Quotient (MDQ)," *IEEE/ASME Transactions on Mechatronics*, Vol. 13, No. 1, pp. 14-21, Feb. 2008.

J191. Behbahani, S. and de Silva, C.W., "Mechatronic Design Quotient (MDQ) as the Basis of a New Multi-Criteria Mechatronic Design Methodology," *IEEE/ASME Transactions on Mechatronics*, Vol. 12, No. 2, pp. 227- 232, 2007.

J192. Behbahani, S. and de Silva, C.W., "Reliability Tradeoffs of a Complex Mechatronic System in the Early Design Stage," *International Journal of Manufacturing Research*, Vol. 2, No. 1, pp. 51-73, 2007.

J193. Goh, H.L., Tan, K.K., Huang, S., and de Silva, C.W., "Development of Bluewave: A Wireless Protocol for Industrial Automation," *IEEE Transactions on Industrial Informatics*, Volume 2, No. 4, pp. 221-230, Nov. 2006.

J194. Chen, Y., Wang, X.G., Sun, C., Devine, F., and de Silva, C.W., "Active Vibration Control with State Feedback in Woodcutting," *Journal of Vibration and Control*, Vol. 9, No. 6, pp. 645-664, 2003.

J195. Omar, F. and de Silva, C.W., "Structural Modelling of Fish as Applied to C.W. Portion Control in Automated Canning," *International Journal of Modelling and Simulation*, Vol. 22, No.1, pp. 8-16, 2002.

J196. Yan, G.K.C., de Silva, C.W., and Wang, G.X., "Experimental Modeling and Intelligent Control of a Wood-Drying Kiln," *International Journal of Adaptive Control and Signal Processing*, Vol. 15, pp. 787-814, 2001.

J197. Omar, F. and de Silva, C.W., "Optimal Portion Control Using Variable Cutter-Blade Spacing in Can-Filling," *Packaging Technology and Science*, Vol. 14, No. 4, pp. 137-148, 2001.

J198. Lee, M.F.R, de Silva, C.W., Croft, E.A., and Wu, Q.M.J., "Machine Vision System for Curved Surface Inspection," *Machine Vision and Applications*, Vol. 12, pp. 177-188, 2000.

J199. Omar, F.K. and de Silva, C.W., "Optimal Portion Control of Natural Objects with Application in Automated Cannery Processing of Fish," *Journal of Food Engineering*, Vol. 46, pp. 31-41, 2000 .

J200. Omar, F. and de Silva, C.W., "The Application of Portion Control Optimization in an Automated Can-Filling Process," *Journal of Food Process Engineering*, Vol. 23, No. 3, pp. 101-125, 2000.

J201. De Silva, C.W. and Wickramarachchi, N., "Knowledge-Based Supervisory Control System of a Fish Processing Workcell; Part II: Implementation and Evaluation," *Engineering Applications of Artificial Intelligence - IFAC International Journal of Intelligent Real-Time Automation*, Vol. 11, No. 1, pp. 119-134, May 1998.

J202. De Silva, C.W. and Wickramarachchi, N., "Knowledge-Based Supervisory Control System of a Fish Processing Workcell; Part I: System Development," *Engineering Applications of Artificial Intelligence - IFAC International Journal of Intelligent Real-Time Automation* , Vol. 11, No. 1, pp. 97-118, May 1998.

J203. De Silva, C.W. and Wickramarachchi, N., "An Innovative Machine for Automated Cutting of Fish," *IEEE/ASME Transactions on Mechatronics*, Vol. 2, No. 2, pp. 86-98, 1997.

J204. Gamage, L.B., Gosine, R.G., and de Silva, C.W., "Extraction of Rules from Natural Objects for Automated Mechanical Processing," *IEEE Transactions on Systems, Man, and Cybernetics*, Vol. 26(1), pp. 105-120, January 1996.

J205. De Silva, C.W., "Automation Intelligence," *IFAC International Journal of Engineering Applications of Artificial Intelligence*, Vol. 7, No. 5, pp. 471-477, 1994.

J206. Bussani, F. and de Silva, C.W., "Use of Finite Element Method to Model Machine Processing of Fish," *ANSYS Finite Element News*, Vol. 5, pp. 36-42, Oct. 1994.

J207. De Silva, C.W., Gosine, R.G., Wu, Q.M., Wickramarachchi, N., and Beatty, A., "Flexible Automation of Fish Processing," *IFAC International Journal of Engineering Applications of Artificial Intelligence,* Vol. 6, No. 2, pp. 165-178, 1993.

J208. De Silva, C.W., "Soft Automation of Industrial Processes," *IFAC International Journal of Engineering Applications of Artificial Intelligence,* Vol. 6(2), pp. 87-90, 1993.

J209. De Silva, C.W., "Research Laboratory for Fish Processing Automation," *International Journal of Robotics and Computer-Integrated Manufacturing*, Vol. 9, No. 1, pp. 49 - 60, 1992.

(h) Control of Engineering Systems including Robots

J210. Gao, S. and de Silva, C.W., "A univariate marginal distribution algorithm based on extreme elitism and its application to the robotic inverse displacement problem," *Genetic Programming and Evolvable Machines*, Vol. 18, No. 3, pp. 283-312, 2017.

J211. Saliba, M. A. and de Silva, C.W., "Quasi-dynamic Analysis, Design Optimization, and Evaluation of a Two-finger Underactuated Hand," *Mechatronics*, Vol. 33, pp. 93-107, 2016.

J212. Wang, Y., Zhang, G.L., Lang, H., and de Silva, C.W., "A Modified Image-based Visual Servo-controller with Hybrid Camera Configuration for Robust Robotic Grasping," *Journal of Robotics and Autonomous Systems*, Vol. 62, No. 10, pp. 1398-1407, 2014.

J213. Lang, H., Khan, M.T., Tan, K.K., and de Silva, C.W. "Developments in Visual Servoing for Mobile Manipulation," *Unmanned Systems*, Vol. 01, No. 1, pp. 143-162, 2013.

J214. Khan, M.T. and de Silva, C.W., "Autonomous and Market-Based Fault Tolerant Algorithms for Multi-Robot Cooperation," *Journal of Information Science and Engineering*, Vol. 30, No. 2, pp. 483-500, 2014.

J215. Liu, D., Cong, M., Du, Y., Zhang, Y., and de Silva, C. W., "Visual Attention Servo Control for Task-specific Robotic Applications," *International Journal of Control, Automation, and Systems*, Vol. 11, No. 6, pp.1-12, 2013.

J216. Liu, D., Cong, M., Du, Y., and de Silva, C. W., "GMM-based Visual Attention for Target Selection of Indoor Robotic Tasks," *Industrial Robot—The International Journal of Industrial and Service Robots*, Vol. 40, No. 6, pp. 583-596, 2013.

J217. Tufail, M. and de Silva, C.W., "Haptic Teleoperation Using Impedance Control with Application in Homecare Robotics," *International Journal of Control and Intelligent Systems*, Vol. 41, No. 3, pp. 178-184, 2013.

J218. Wu, K., de Silva, C.W., and Dunford, W.G., "Theoretical Stability Analysis of Isolated Bidirectional Dual Full Bridge DC-DC Converter," *Asian Power Electronics Journal*, Vol. 7, No. 1, pp. 11-18, 2013.

J219. Wu, K., Dunford, W.G., and de Silva, C.W., "Maximum Output Power Analysis of Isolated Bidirectional Dual Full Bridge DC-DC Converter with Phase-shift Control Methods," *Asian Power Electronics Journal*, Vol. 7, No. 1, pp. 1-10, 2013.

J220. Behbahani, S. and de Silva, C.W., "Automated Identification of a Mechatronic System Model Using Genetic Programming and Bond Graphs," *Journal of Dynamic Systems, Measurement, and Control*, Trans. ASME, Vol. 135, No. 5, pp. 051007-1-12, 2013.

J221. Khan, M.T. and de Silva, C.W., "Autonomous and Robust Multi-Robot Cooperation Using an Artificial Immune System," *International Journal of Robotics and Automation*, Vol. 27, No. 1, pp. 60-75, 2012.

J222. Wang, Y., Lang, H., Lin, H., and de Silva, C.W., "Vision-based Grasping using Mobile Robots and Nonlinear Model Predictive Control," *International Journal of Control and Intelligent Systems*, Vol. 40, No. 1, pp. 3-10, 2012.

J223. Zeng, Q. and de Silva, C.W., "The Application of Fractional Order Control in an Industrial Fish Processing Machine," International Journal of Control and Intelligent Systems, Vol. 40, No. 3, pp. 177-185, 2012.

J224. Wu, K., de Silva, C.W., and Dunford, W.G., "Stability Analysis of Isolated Bidirectional Dual Active Full Bridge DC-DC Converter with Triple Phase-shift Control," *IEEE Transactions on Power Electronics*, Vol. 27, No. 4, pp. 2007–2017, 2012.

J225. Wang, Y., Siriwardana, P.G.D., and de Silva, C.W., "Multi-Robot Cooperative Transportation of Objects Using Machine Learning," *International Journal of Robotics and Automation*, Vol. 26, No. 4, pp. 369-375, 2011.

J226. Wang, Y., Lang, H., and de Silva, C.W., "A Hybrid Visual-Servo Controller for Robust Grasping by Wheeled Mobile Robots," *IEEE/ASME Transactions on Mechatronics*, Vol. 15, No. 5, 757-769, October 2010.

J227. Kim, D., Seo, S.J, de Silva, C.W., and Park, G.T., "Use of Support Vector Regression in Walking Robot Identification," *Electronics and Telecommunications Research Institute (ETRI) Journal*, Vol. 31, No. 5, pp. 565-575, October 2009.

J228. Wang, Y. and de Silva, C.W., "A Machine Learning Approach to Multi-robot Coordination," *IFAC International Journal Engineering Applications of Artificial Intelligence*, Vol. 21, pp. 470-484, 2008.

J229. Wang, Y. and de Silva, C.W., "A Fast and Robust Algorithm for Color-Blob Tracking in Multi-Robot Coordinated tasks," *International Journal of Information Acquisition*, Vol. 3, No. 3, pp. 191-200, 2006.

J230. McCourt, R.A. and de Silva, C.W., "Autonomous Robotic Capture of a Satellite Using Constrained Predictive Control," *IEEE/ASME Transactions on Mechatronics*, Vol. 11, No. 6, pp. 699-708, 2006.

J231. Cao, Y. and de Silva, C.W., "Supervised Switching Control of a Deployable Manipulator System," *International Journal of Control and Intelligent Systems*, Vol. 34, No. 2, pp. 153-165, 2006.

J232. Cao, Y. and de Silva, C.W., "Dynamic Modeling and Neural-Network Adaptive Control of a Deployable Manipulator System," *Journal of Guidance, Control, and Dynamics*, Vol. 29, No. 1, pp. 192-195, 2006.

J233. Cao, Y., Modi, V.J., de Silva, C.W., Chu, M., Chen, Y., and Misra, A.K., "Trajectory Tracking Experiments Using a Novel Manipulator," *Acta Astronautica*, Vol. 52, No. 7, pp. 523-540, 2003.

J234. Modi, V.J., Zhang, J., de Silva, C.W., and Misra, A.K., "On the Dynamics of a Novel Manipulator with Slewing and Deployable Links," *Acta Astronautica*, Vol. 51, No. 12, pp. 821-830, 2002.

J235. Cao, Y., Modi, V.J., de Silva, C.W., and Misra, A.K., "Trajectory Tracking Control of a Multimodule Deployable Manipulator: Analyses and Experiments," *Advances in the Astronautical Sciences*, Vol. 109, Part II, pp. 867-886, 2001.

J236. Modi, V.J., Cao, Y., de Silva, C.W., and Misra, A.K., "A Class of Novel Space Platform-Based Manipulator with Slewing and Deployable Links: Analyses and Experiments," *Journal of Vibration and Control*, Vol. 7, pp. 1111-1161, 2001.

J237. Zhang, J., Modi, V.J., and de Silva, C.W., "Parametric Dynamical Study of a Novel Manipulator," *Advances in the Astronautical Sciences,* Vol. 110, pp. 115-136, 2001.

J238. Cao, Y., Modi, V.J., de Silva, C.W., and Misra, A.K., "On the Control of a Novel Manipulator with Slewing and Deployable Links," *Acta Astronautica*, Vol. 49, No. 12, pp. 645-658, 2001.

J239. Stanley, K., Wu, Q.M.J., de Silva, C.W. and Gruver, W., "Modular Neural-Visual Servoing with Image Compression Input," *Journal of Intelligent and Fuzzy Systems*, Vol.10, No.1, pp. 1-11, 2001.

J240. Chen, Y., Modi, V.J., de Silva, C.W., and Misra, A.K., "On the Performance of Variable Geometry Manipulators: Part II -- Computer Implementation and Dynamical Study," *Acta Astronautica*, Vol. 49, No. 1, pp.13-30, 2001.

J241. Chen, Y., Modi, V.J., de Silva, C.W., and Misra, A.K., "On the Performance of Variable Geometry Manipulators: Part I -- Three Dimensional Order N Formulation," *Acta Astronautica*, Vol. 49, No. 1, pp.1-12, 2001.

J242. Cao, Y., Modi, V.J., de Silva, C.W., and Misra, A.K., "On the Control of Space Platform-Based Variable Geometry Manipulator," *Advances in the Astronautical Sciences*, Vol. 103, Part I, pp. 305-326, 1999.

J243. Tafazoli, S., de Silva, C.W., and Lawrence, P.D., "Tracking Control of an Electrohydraulic Manipulator in the Presence of Friction," *IEEE Transactions on Control Systems Technology*, Vol. 6, No. 3, pp. 401-411, May 1998.

J244. Zhou, Y. and de Silva, C.W., "Adaptive Control of an Industrial Robot Retrofitted with an Open-Architecture Controller," *Journal of Dynamic Systems, Measurement, and Control*; Trans. ASME, Vol. 118, No. 1, pp. 143-150, March 1996.

J245. De Silva, C.W., "Recursive Linearizing and Decoupling Control of Robots," *Journal of Dynamics and Control*, Vol. 2, pp. 401-414, 1992.

J246. De Silva, C.W., "Trajectory Design for Robotic Manipulators in Space Applications," *Journal of Guidance, Control, and Dynamics,* Vol. 14, No. 3, pp. 670-674, June 1991.

J247. De Silva, C.W., "Design of PPD Controllers for Position Servos," *Journal of Dynamic Systems, Measurement, and Control*, *Trans. ASME*, Vol. 112, No. 3, pp. 519-523, September 1990.

J248. De Silva, C.W. and Van Winssen, J.C., "Least Squares Adaptive Control for Trajectory Following Robots," *Journal of Dynamic Systems, Measurement, and Control*, Trans. ASME, Vol. 109 (2), pp. 104-110, June 1987.

J249. De Silva, C.W. and Fukumura, R., "Preview Control," *Measurements and Control*, Vol. 20, No. 3, pp. 165-169, June 1986.

CONFERENCE PAPERS

C1. Li, T., Xia, M., Chen, J., Gao, S., and de Silva, C.W., "A hexagonal grid-based sampling planner for aquatic environmental monitoring using unmanned surface vehicles," *IEEE International Conference on Systems, Man, and Cybernetics*, Banff, Canada, pp. 3683-3688, October 2017 (Full Paper Reviewed).

C2. Xia, M, Li, T., Liu, L., Xu, L, Gao, S., and de Silva, C.W., "Remaining useful life prediction of rotating machinery using hierarchical deep neural network," (SMC), *IEEE International Conference on Systems, Man, and Cybernetics*, Banff, Canada, pp. 2778-2783, October 2017 (Full Paper Reviewed).

C3. Gao, S. and de Silva, C.W., "Estimation distribution algorithms with differential mutation for multi-objective optimization problems," (SMC), *IEEE International Conference on Systems, Man, and Cybernetics*, Banff, Canada, pp. 46-51, October 2017 (Full Paper Reviewed).

C4. Khoshnoud, F., de Silva, C.W., and Esat, I.I., "Quantum entanglement of autonomous vehicles for cyber-physical security," (SMC), *IEEE International Conference on Systems, Man, and Cybernetics*, Banff, Canada, pp. 2655-2660, October 2017 (Full Paper Reviewed).

C5. Wang, C., Meng, L., She, S., Mitchell, I.M., Li, T., Tung, F., Wan, W., Meng, M.Q.H., and de Silva, C.W., "Autonomous Mobile Robot Navigation in Uneven and Unstructured Indoor Environments," *Proc. IEEE/RSJ International Conference on Intelligent Robots and Systems* (*IROS*), Vancouver, Canada, pp. 109-116, September 2017 (Full Paper Reviewed).

C6. Meng, L., Chen, J., Tung, F., Little, J.L., Valentin, J., and de Silva, C.W., "Backtracking Regression Forests for Accurate Camera Re-localization," *Proc. IEEE/RSJ International Conference on Intelligent Robots and Systems* (*IROS*), Vancouver, Canada, pp. 6886-6893, September 2017 (Full Paper Reviewed).

C7. Wang, C., Meng, L., Li, T., and de Silva, C.W., "Towards Autonomous Exploration with Information Potential Field in 3D Environments", *Proc. 18th IEEE International Conference on Advanced Robotics* (*ICAR*), Hong Kong, pp. 340-345, July 2017 (Full Paper Reviewed).

C8. Khoshnoud, F., Esat, I.I,, Bonser, R.H.C., de Silva, C.W., McKerns, M.M., and Owhadi, H., "Self-Powered and Bio-Inspired Dynamic Systems: Research and Education, *Proceedings of ASME International Mechanical Engineering Congress and Exposition (IMECE),* Phoenix, AZ, Paper No. IMECE2016-65276, pp. 1-19, November, 2016 (Full Paper Reviewed).

C9. <u>Meng, L.</u>, Chen, J., Tung, F., Little, J.L., and de Silva, C.W., "Exploiting Random RGB and Sparse Features for Camera Pose Estimation," *Proc. British Machine Vision Conference* (*BMVC*), Heslington, UK, pp. 59.1-59.12, September 2016 (Full Paper Reviewed).

C10. Iftikhar, K., <u>Khan, M.T.</u>, and de Silva, C.W., "Fault Detection with Sensor Fusion Using Intelligent Immune System," *Proceedings of the 7th IEEE International Conference and Workshop on Computing and Communication (IEEE IEMCON 2016)*, Vancouver, Canada, pp. 360-365, October 2016 (Full Paper Reviewed).

C11. Abid, A., <u>Khan, M.T.</u>, and de Silva, C.W., "Fault Detection in Mobile Robots using Sensor Fusion," *Proceedings of the 10th IEEE International Conference on Computer Science & Education*, Cambridge, England, pp. 8-13, July 2015 (Full Paper Reviewed).

C12. <u>Khan, M.T.</u>, Qadir, M.U., Nasir, F., and de Silva, C.W., "A Framework for a Fault Tolerant Multi-robot System," *Proceedings of the 10th IEEE International Conference on Computer Science & Education*, Cambridge, England, pp. 197-201, July 2015 (Full Paper Reviewed).

C13. <u>Khoshnoud, F.</u>, Esat, I.I., and de Silva, C.W., "Bioinspired Psi Intelligent Control for autonomous vehicles," *Proceedings of the 10th IEEE International Conference on Computer Science & Education*, Cambridge, England, pp. 208-212, July 2015 (Full Paper Reviewed).

C14. Du, Y, de Silva, C.W., Cong, M., and Liu, D., "An Integrated Model of Visual Attention for Homecare Robot with Self-Awareness," *Proceedings of the 2015 IEEE Conference on Robotics and Biomimetics* (ROBIO 2015), Zhuhai, China, 1752 – 1757, December 2015 (Full Paper Reviewed).

C15. <u>Khoshnoud, F.</u>, Lu, J., Zhang, Y., Folkson, R., and de Silva, C.W., "Suspension energy regeneration for random excitations and self-powered actuation," *IEEE International Conference on Systems, Man, and Cybernetics*, San Diego, CA, pp. 2549-2554, October 2014 (Full Paper Reviewed).

C16. <u>Balkhair, H.</u> and de Silva, C.W., "A Systematic Approach for Functional Decomposition of Mechatronic System Design Using Mechatronic Design Quotient (MDQ)," *Proceedings of the 9th IEEE International Conference on Computer Science & Education*, Vancouver, Canada, pp. 135-139, August 2014 (Full Paper Reviewed).

C17. <u>Du, Y.</u>, de Silva, C.W., and <u>Liu, D.</u>, "A Multi-agent Hybrid Cognitive Architecture with Self-awareness for Homecare Robot," *Proceedings of the 9th IEEE International Conference on Computer Science & Education*, Vancouver, Canada, pp. 223-228, August 2014 (Full Paper Reviewed).

C18. <u>Gao, S.</u> and de Silva, C.W., "Formulation of a State-space Model for a Parallel Manipulator Using Linear Graphs," *Proceedings of the 9th IEEE International Conference on Computer Science & Education*, Vancouver, Canada, pp. 140-148, August 2014 (Full Paper Reviewed).

C19. Li, T., de Silva, C.W., and Mitra, S., "Design of a Self-tuning Controller for Local Water Quality Adjustment," *Proceedings of the 9th IEEE International Conference on Computer Science & Education*, Vancouver, Canada, pp. 218-222, August 2014 (Full Paper Reviewed).

C20. Maghsoud, P., de Silva, C.W., and Khan, M.T., "Autonomous and Cooperative Multirobot System for Multi-Object Transportation," *Proceedings of the 9th IEEE*

International Conference on Computer Science & Education, Vancouver, Canada, pp. 211-217, August 2014 (Full Paper Reviewed).

C21. Meng, L., de Silva, C.W., and Zhang, J., "3D Visual SLAM for an Assistive Robot in Indoor Environments Using RGB-D Cameras," *Proceedings of the 9th IEEE International Conference on Computer Science & Education*, Vancouver, Canada, pp. 32-37, August 2014 (Full Paper Reviewed).

C22. Tufail, M. and de Silva, C.W., "Impedance Control Schemes for Bilateral Teleoperation," *Proceedings of the 9th IEEE International Conference on Computer Science & Education*, Vancouver, Canada, pp. 44-49, August 2014 (Full Paper Reviewed).

C23. Wang, Y. and de Silva, C.W., "An Experimental Setup for Dynamics Control of Robot Manipulators," *Proceedings of the 9th IEEE International Conference on Computer Science & Education*, Vancouver, Canada, pp. 123-128, August 2014 (Full Paper Reviewed).

C24. Xia, M. and de Silva, C.W., "A Framework of Design Weakness Detection through Machine Health Monitoring for the Evolutionary Design Optimization of Multi-domain Systems," *Proceedings of the 9th IEEE International Conference on Computer Science & Education*, Vancouver, Canada, pp. 205-210, August 2014 (Full Paper Reviewed).

C25. Zhang, Y., Bhatt, R., and de Silva, C.W., "MKL-SVM-based Human Detection for Autonomous Navigation of a Robot," *Proceedings of the 9th IEEE International Conference on Computer Science & Education*, Vancouver, Canada, pp. 27-31, August 2014 (Full Paper Reviewed).

C26. Zhang, Y., de Silva, C.W., Su, D., and Xue, Y., "Autonomous Robot Navigation with Self-learning for Collision Avoidance with Randomly Moving Obstacles," *Proceedings of the 9th IEEE International Conference on Computer Science & Education*, Vancouver, Canada, pp. 117-122, August 2014 (Full Paper Reviewed).

C27. Khoshnoud, F., Chen, Y.K., Calay, R.K., de Silva, C.W., and Owhadi, H., "Self-Powered Dynamic Systems," *Proceedings of the European Conference for Aeronautics and Space Sciences*, Munich, Germany, pp. 1-11, July 2013 (Full Paper Reviewed).

C28. Er, P.V., Tan, K. K., Lim, H.Y., Narayanan, A.S., and de Silva, C.W., "Development of Hearing Aids With Frugal Objectivity," *Proceedings of the IASTED International Conference on Engineering and Applied Science*, Colombo, Sri Lanka, pp. 370-377, December 2012 (Full Paper Reviewed).

C29. Narayanan, A.S., Lam, W.C., Tan, K. K., Koh, C.H., and de Silva, C.W., "Development of A Video Streaming System For Telehealth Applications," *Proceedings of the IASTED International Conference on Engineering and Applied Science*, Colombo, Sri Lanka, pp. 354-361, December 2012 (Full Paper Reviewed).

C30. Tufail, M. and de Silva, C.W., "Haptic Teleoperation Using Impedance Control with Application In Homecare Robotics," *Proceedings of the IASTED International Conference on Engineering and Applied Science*, Colombo, Sri Lanka, pp. 341-346, December 2012 (Full Paper Reviewed).

C31. Khan, M.T., de Silva, C.W., and Khan, A., "Auction-Based Fault-Tolerant Multi-Robot Cooperation," *Proceedings of the IASTED International Conference on Engineering and Applied Science*, Colombo, Sri Lanka, pp. 163-167, December 2012 (Full Paper Reviewed).

C32. De Silva, C.W., "IMAGINE Telemedicine: Improved Medical Access through Grama Interactive Environment," *Proceedings of the International Workshop on M2M Technology 2012*, pp. 37-54, Taipei, Taiwan, October 2012 (**Published Keynote Talk**).

C33. Wierzbicki, M. and de Silva, C.W., "Application of Fuzzy Logic for Optimizing Foldable Freeform Geometries : An example of a practical application – a foldable window shade," *Proceedings of the 30th International Conference on Education and research in Computer Aided Architectural Design in Europe, eCAADe 2012*, Prague, Czech Republic, pp. 709-718, September 2012 (Full Paper Reviewed).

C34. Khan, M.T., Behbahani, S., Hsu, Q., Li, J., and de Silva, C.W., "Optimized Dynamic Task Allocation in Cooperative Multi-Robot Search and Rescue Operations," *Proceedings of the 23rd Canadian Congress of Applied Mechanics*, Vancouver, BC, pp. 1052-1055, June 2011 (Full Paper Reviewed).

C35. Lang, H. and de Silva, C.W., "Adaptive Nonlinear Model Predictive Controller for Visual Servoing of Mobile Manipulation," *Proceedings of the 23rd Canadian Congress of Applied Mechanics*, Vancouver, BC, pp. 928-931, June 2011 (Full Paper Reviewed).

C36. Wierzbicki, M.N. and de Silva, C.W., "Evaluation of the Intuitionistic Approach for Modeling Architectural Design Requirements," *Proceedings of the 23rd Canadian Congress of Applied Mechanics*, Vancouver, BC, pp. 900-903, June 2011 (Full Paper Reviewed).

C37. Gadala, I.M., Bsoul, A., and de Silva, C.W., "Modeling and Simulation of a Clamped-Clamped Type MEMS Resonator Filter for Radio Frequency Electronics," *Proceedings of the 23rd Canadian Congress of Applied Mechanics*, Vancouver, BC, pp. 809-812, June 2011 (Full Paper Reviewed).

C38. Khoshnoud, F., de Silva, C.W., Owhadi, H., Zhu, W., and Ventura, C.E., "Energy Harvesting from Ambient Vibration for Remote Vibration Monitoring with a Self-Powered Nanotube Based Sensor," *Proceedings of the 23rd Canadian Congress of Applied Mechanics*, Vancouver, BC, pp. 805-808, June 2011 (Full Paper Reviewed).

C39. Samarakoon, B, Gamage, L.B., and de Silva, C.W., "Controlled Evolution of Engineering Systems Using Bond Graphs and Genetic Programming," *Proceedings of the 23rd Canadian Congress of Applied Mechanics*, Vancouver, BC, pp. 791-794, June 2011 (Full Paper Reviewed).

C40. Khoshnoud, F., de Silva, C.W., and Owhadi, H., "Multi-Scale Design of an Actuator with Thermal-Mechanical Energy Conversion and Coupling," *Proceedings of the 23rd Canadian Congress of Applied Mechanics*, Vancouver, BC, pp. 711-714, June 2011 (Full Paper Reviewed).

C41. Khoshnoud, F., Owhadi, H., de Silva, C.W., and Li, S., "Multi-Scale Non-Equilibrium Molecular Dynamics Formulation for Casimir Energy," *Proceedings of the 23rd Canadian Congress of Applied Mechanics*, Vancouver, BC, pp. 707-710, June 2011 (Full Paper Reviewed).

C42. Razavi, B. and de Silva, C.W., "Condition Monitoring for Dry Friction Buildup in an Industrial Hydraulic System Using Unscented Kalman Filter," *Proceedings of the 23rd Canadian Congress of Applied Mechanics*, Vancouver, BC, pp. 429-432, June 2011 (Full Paper Reviewed).

C43. Alipourazadi, S. and de Silva, C.W., "Modeling of One-Dimensional Distributed Systems Using Linear Graphs," *Proceedings of the 23rd Canadian Congress of Applied Mechanics*, Vancouver, BC, pp. 308-311, June 2011 (Full Paper Reviewed).

C44. Wang, Y. and de Silva, C.W., "Haptic Telemanipulation with Impedance Control and its Application in Homecare Robotics," *Proceedings of the 23rd Canadian Congress of Applied Mechanics*, Vancouver, BC, pp. 73-76, June 2011 (Full Paper Reviewed).

C45. Yu, Y.Q., de Silva, C.W., Poo, A.N., and Tan, K.K., "Design Optimization of a Green Environment Liner-less Thermal Head Printer Using Genetic Programming and Linear Graphs," *Proceedings of the 4th Asia International Symposium on Mechatronics*, Singapore, pp. 383-388, December 2010 (Full Paper Reviewed).

C46. Afrin, A.S., de Silva, C.W., Poo, A.N., and Tan, K.K., "Evolution of a Manipulator Model Using Linear Graphs and Genetic Algorithms," *Proceedings of the 4th Asia International Symposium on Mechatronics*, Singapore, pp. 187-192, December 2010 (Full Paper Reviewed).

C47. Siriwardana, P.G.D. and de Silva, C.W., "Multi-Robot Cooperative Transportation of Objects Using Modified Q-Learning," *Proceedings of ASME International Mechanical Engineering Congress and Exposition (IMECE 2010),* Vancouver, Canada, CD ROM Proceedings Paper No. IMECE2010-40055, pp. 1-9, November, 2010 (Full Paper Reviewed).

C48. Khan, M.T., Imanuel, T., Gabo, Y., and de Silva, C.W., "Robust Multi-Robot Cooperation Using an Idiotypic Model of Artificial Immune Systems," *Proceedings of ASME International Mechanical Engineering Congress and Exposition (IMECE 2010),* Vancouver, Canada, CD ROM Proceedings Paper No. IMECE2010-37966, pp. 1-8, November, 2010 (Full Paper Reviewed).

C49. Khoshnoud, F., Owhadi, H., and de Silva, C.W. "Stochastic Simulation of a Casimir Oscillator," *Proceedings of ASME International Mechanical Engineering Congress and Exposition (IMECE 2010),* Vancouver, Canada, CD ROM Proceedings Paper No. IMECE2010-39746, pp. 1-10, November, 2010 (Full Paper Reviewed).

C50. Khoshnoud, F. and de Silva, C.W., "Modal Analysis of Systems Using a Neuro-Fuzzy Approach," *Proceedings of ASME International Mechanical Engineering Congress and Exposition (IMECE 2010),* Vancouver, Canada, CD ROM Proceedings Paper No. IMECE2010-37798, pp. 1-13, November, 2010 (Full Paper Reviewed).

C51. Khoshnoud, F., de Silva, C.W., and Owhadi, H., "Analysis and Design of a Nano-electromechanical Vibration Sensor," *Proceedings of ASME International Mechanical Engineering Congress and Exposition (IMECE 2010),* Vancouver, Canada, CD ROM Proceedings Paper No. IMECE2010-37797, pp. 1-9, November, 2010 (Full Paper Reviewed).

C52. Wierzbicki, M. and de Silva, C.W., "Intuitionistic Approach Toward Capturing and Modeling Design Requirements," *Proceedings of 10th International Conference on Construction Applications of Virtual Reality*, Sendai, Japan, pp. 67-76, November 2010 (Full paper Reviewed).

C53. Khan, M.T., Imanuel, T., and de Silva, C.W., "Autonomous Market-Based Multi-Robot Cooperation," *Proceedings of the International Conference on Intelligent and Advanced Systems*, Kuala Lumpur, Malaysia, CD Proceedings Paper No. 1569288393, pp. 1-6, June 2010 (Full Paper Reviewed).

C54. Lang, H., Wang, Y., and de Silva, C.W., "Visual Servoing with LQR Control for Mobile Robots," *Proceedings of the 8th IEEE International Conference on Control and Automation*, Xiamen, China, CD Proceedings, pp. 317-321, June 2010 (Full Paper Reviewed).

C55. Ganji, M., Behbahani, S., and de Silva, C.W., "Integrated Modeling of an Electro-Hydraulic Servo Manipulator Using Linear Graphs," *Proceedings of the 8th IEEE International Conference on Control and Automation*, Xiamen, China, CD Proceedings, pp. 303-308, June 2010 (Full Paper Reviewed).

C56. Lang, H., Wang, Y., and de Silva, C.W., "Vision-Based Object Identification and Tracking for Mobile Robot Visual Servo Control," *Proceedings of the 8th IEEE International Conference on Control and Automation*, Xiamen, China, CD Proceedings, pp. 92-96, June 2010 (Full Paper Reviewed).

C57. Wang, Y., Lang, H., and de Silva, C.W., "An Autonomous Mobile Grasping System Using Visual Servoing and Nonlinear Model Predictive Control," *Proceedings of the 8th IEEE International Conference on Control and Automation*, Xiamen, China, CD Proceedings, pp. 86-91, June 2010 (Full Paper Reviewed).

C58. De Silva, C.W., Tan, K.K., Huang, S., Lee, T.H., and Wu, R., "Distributed DSP for Fault Monitoring and Control," *Proceedings of the Digital Signal Processing Creative Design Contest*, Tainan, Taiwan, pp. 59-65, November 2009 **(Received the Technical Award).**

C59. De Silva, C.W., "Multi-Robot Cooperation in Tasks Involving Human Security/Safety," *Proceedings of the 10th International Conference on Computers, Communications and Systems* (*ICCCS*), Daegu, Korea, pp. 34-56, November 2009 **(Published keynote talk).**

C60. Raman, S. and de Silva, C.W., "Classifier Design for Sensor-Fault Tolerant Condition Monitoring in an Industrial Machine," *Proceedings of the ASME 2009 Dynamic Systems and Control Conference*, Hollywood, CA, Paper DSCC2009-2667, CD Proceedings pp. 1-7, October 2009 (Full Paper Reviewed).

C61. Khan, M.T. and de Silva, C.W., "Immune System-Inspired Dynamic Multi-Robot Coordination," *Proceedings of the 2009ASME/IEEE International Conference on Mechatronics and Embedded Systems and Applications*, San Diego, CA, CD Proceedings pp. 1-7, August 2009 (Full Paper Reviewed).

C62. Siriwardana, P.G.D., Khan, M.T., and de Silva, C.W., "Object Pose Estimation for Multi-Robot Cooperative Object Transportation," *Proceedings of the 2009ASME/IEEE International Conference on Mechatronics and Embedded Systems and Applications*, San Diego, CA, CD Proceedings pp. 1-9, August 2009 (Full Paper Reviewed).

C63. Wang, Y., Lang, H., and de Silva, C.W., "A Robust Mobile Robot Manipulation System Using a Switch-Based Visual-Servo Controller," *International Conference on Industrial Mechatronics and Automation*, Chengdu, China, pp. 364-367, May 2009 (Full Paper Reviewed).

C64. Khan, M.T. and de Silva, C.W., "Autonomous Fault Tolerant Multi-Robot Coordination for Object Transportation Based on Artificial Immune System," *Proceedings of the 2nd IEEE International Conference on Robot Communication and Coordination*, Odense, Denmark, CD Proceedings pp. 1-6, April 2009 (Full Paper Reviewed).

C65. Sun, J., Poo, A.N., de Silva, C.W., Ang, M.H., Chew, C.M., Hong, G.S., and Tan, K.K., "Evaluation and Optimization of a Passive Vibration Controller Design for Flexible

Beams," *IEEE International Conference on Systems, Man and Cybernetics*, Singapore, pp. 3588-3594, October 2008 (Full Paper Reviewed).

C66. Khoshnoud, F. and de Silva, C.W., "Analysis of a Carbon Nanotube-based Nano-electromechanical Vibration Sensor Using Finite Element Modeling," *Proceedings of the 5th International Congress of Nano Bio Clean Tech*, San Francisco, CA, CD Proceedings pp. 1-25, October 2008 (Full Paper Reviewed).

C67. Khoshnoud, F. and de Silva, C.W., "An Embedded Nano-electromechanical Capacitive Sensor Based on Carbon Nanotubes for Vibration Monitoring," *Proceedings of the 5th International Congress of Nano Bio Clean Tech*, San Francisco, CA, CD Proceedings pp. 1-23, October 2008 (Full Paper Reviewed).

C68. Lang, H., Wang, Y., and de Silva, C.W., "An Automated Industrial Fish Cutting Machine: Control, Fault Diagnosis and Remote Monitoring," *Proceedings of the IEEE International Conference on Automation and Logistics*, Qingdao, China, pp. 775-780, September 2008 (Full Paper Reviewed).

C69. Lang, H., Wang, Y., and de Silva, C.W., "Mobile Robot Localization and Object Pose Estimation Using Optical Encoder, Vision and Laser Sensors," *Proceedings of the IEEE International Conference on Automation and Logistics*, Qingdao, China, pp. 617-622, September 2008 (Full Paper Reviewed).

C70. Zhang, G.L., Wang, Y., and de Silva, C.W., "Knowledge-based Grasping of Unknown Objects in Unstructured Urban Environments," *Proceedings of the IEEE International Conference on Automation and Logistics*, Qingdao, China, pp. 250-255, September 2008 (Full Paper Reviewed).

C71. Zhang, G.L., Wang, Y., and de Silva, C.W., "Multi-Sensor Gripper Positioning in Unstructured Urban Environments Using Neural Networks," *Proceedings of the IEEE International Conference on Automation and Logistics*, Qingdao, China, pp. 1474-1479, September 2008 (Full Paper Reviewed).

C72. Wang, Y., Lang, H., and de Silva, C.W., "Q-learning Based Multi-robot Box-Pushing with Minimal Switching of Actions," *Proceedings of the IEEE International Conference on Automation and Logistics*, Qingdao, China, pp. 640-643, September 2008 (Full Paper Reviewed).

C73. Wang, Y., Lang, H., and de Silva, C.W., "Visual Servo Control and Parameter Calibration for Mobile Multi-robot Cooperative Assembly Tasks," *Proceedings of the IEEE International Conference on Automation and Logistics*, Qingdao, China, pp. 635-639, September 2008 (Full Paper Reviewed).

C74. Khan, M.T. and de Silva, C.W., "Autonomous Fault Tolerant Multi-Robot Cooperation Using Artificial Immune System," *Proceedings of the IEEE International Conference on Automation and Logistics*, Qingdao, China, pp. 623-628, September 2008 (Full Paper Reviewed).

C75. Lang, H. and de Silva, C.W., Trajectory Control of an ASEA IRB6 Manipulator With Singularity Configuration," *Proceedings of ASME International Mechanical Engineering Congress and Exposition (IMECE 2007),* Seattle, WA, CD ROM Proceedings Paper No. IMECE2007-42716, November, 2007 (Full Paper Reviewed).

C76. Lang, H. and de Silva, C.W., "Fault Diagnosis of an Industrial Machine through Neuro-Fuzzy Sensor Fusion**,"** *Proceedings of ASME International Mechanical Engineering*

Congress and Exposition (IMECE 2007), Seattle, WA, CD ROM Proceedings Paper No. IMECE2007-42323, November, 2007 (Full Paper Reviewed).

C77. Wang, Y. and de Silva, C. W., "Assess Team Q-learning Algorithm in a Purely Cooperative Multi-robot Task," *Proceedings of ASME International Mechanical Engineering Congress and Exposition (IMECE 2007),* Seattle, WA, CD ROM Proceedings Paper No. IMECE2007-41644, November, 2007 (Full Paper Reviewed).

C78. Wang, Y. and de Silva, C. W., "A Modified Q-learning Algorithm for Multi-robot Decision Making," *Proceedings of ASME International Mechanical Engineering Congress and Exposition (IMECE 2007),* Seattle, WA, CD ROM Proceedings Paper No. IMECE2007-41643, November, 2007 (Full Paper Reviewed).

C79. Alrasheed, M., de Silva, C.W., and Gadala, M., "A New Extension of Particle Swarm Optimization and Its Application in Electronic Heat Sink Design," *Proceedings of ASME International Mechanical Engineering Congress and Exposition (IMECE 2007),* Seattle, WA, CD ROM Proceedings Paper No. IMECE2007-41224, November, 2007 (Full Paper Reviewed).

C80. Pirmoradi, F., Sassani, F., and de Silva, C. W., "An Efficient Algorithm for Health Monitoring and Fault Diagnosis in a Spacecraft Attitude Determination System," *Proc. IEEE International Conference on Systems, Man, and Cybernetics*, Montreal, QC, Canada, pp. 4024-4030, October 2007 (Full Paper Reviewed).

C81. Wierzbicki, M. and de Silva, C.W., "Development of Design Workflows for Kinetic structures Using Fuzzy Logic," *Proceedings of the Association for Computer Aided Design in Architecture (ACADIA) Conference*, Halifax, NS, Canada, pp. 250-259, October 2007 (Full Paper Reviewed).

C82. Alrasheed, M.R., de Silva, C.W., and Gadala, M.S., "A Modified Particle Swarm Optimization and Its Application in Electronic Heat Sink Design," *InterPACK 2007,* Vancouver, B.C., Canada, July 2007 (Full Paper Reviewed).

C83. Wang, Y. and de Silva, C. W., "Multi-robot Box-pushing: Single-Agent Q-Learning vs. Team Q-Learning," *Proceedings of 2006 IEEE International Conference on Intelligent Robots and Systems (IROS)*, Beijing, China, pp. 3694-3699, October, 2006 (Full Paper Reviewed).

C84. Khoshnoud, F., Ventura, C. E., and de Silva, C. W., "Structural Vibration Modeling Using a Neuro-Fuzzy Approach," *Proceedings of the 2006 IEEE International Conference on Fuzzy Systems*, Vancouver, BC, Canada, pp. 3302-3308, July, 2006 (Full Paper Reviewed).

C85. Behbahani S. and de Silva, C. W., "A New Multi-Criteria Mechatronic Design Methodology Using Niching Genetic Algorithm," *Proceedings of the 2006 IEEE Congress on Evolutionary Computation*, Vancouver, BC, Canada, pp. 1031-1036, July, 2006 (Full Paper Reviewed).

C86. Wang, Y. and de Silva, C. W., "Cooperative Transportation by Multiple Robots with Machine Learning," *Proceedings of the 2006 IEEE Congress on Evolutionary Computation*, Vancouver, BC, Canada, pp. 10407-10413, July, 2006 (Full Paper Reviewed).

C87. Wang, Y. and de Silva, C. W., "Extending Single-agent Reinforcement Learning Approach to a Multi-robot Cooperative Task in an Unknown Dynamic Environment," *Proceedings of the 2006 IEEE International Joint Conference on Neural Networks*

(IJCNN06), Vancouver, BC, Canada, pp. 10098-10104, July, 2006 (Full Paper Reviewed).

C88. Fan, T. and de Silva, C.W., "Intelligent Model Predictive Control of a Flexible-Link Robotic Manipulator," *Proceedings of the ASME International Mechanical Engineering Congress and Exposition*, Orlando, FL, CD ROM Proceedings Paper No. IMECE2005-81899, November 2005 (Full Paper Reviewed).

C89. Yang, L., de. Silva, C.W., Chew, C.M., and Poo, A.N., "A Sequential Optimization of Length Ratio of Acrobot Model by MDQ Design Approach," *Proceedings of the International Symposium on Collaborative Research in Applied Science*, Vancouver, BC, Canada, pp. 222-229, October 2005 (Reviewed Abstract).

C90. Behbahani, S. and de Silva, C.W., "Use of the Mechatronic Design Quotient (MDQ) in Multi-Criteria Design," *Proceedings of the International Symposium on Collaborative Research in Applied Science*, Vancouver, BC, Canada, pp. 214-221, October 2005 (Reviewed Abstract).

C91. Alrasheed, M.R., de Silva, C.W., and Gadala, M.S., "Application of Evolutionary Optimization in the Design of a Micro-channel Heat Sink System," *Proceedings of the International Symposium on Collaborative Research in Applied Science*, Vancouver, BC, Canada, pp. 203-213, October 2005 (Reviewed Abstract).

C92. Wang, Y. and de Silva, C.W., "A Fast Computer Vision Algorithm Used in Multi-robot Cooperative Control," *Proceedings of the International Symposium on Collaborative Research in Applied Science*, Vancouver, BC, Canada, pp. 189-194, October 2005 (Reviewed Abstract).

C93. Fan, T. and de Silva, C.W., "Model Predictive Control of a Flexible-Link Robotic Manipulator," *Proceedings of the International Symposium on Collaborative Research in Applied Science*, Vancouver, BC, Canada, pp. 166-173, October 2005 (Reviewed Abstract).

C94. Behbahani, S. and de Silva, C.W., "Identification of a Mechatronic Model Using an Integrated Bond-Graph and Genetic-Programming Approach," *Proceedings of the International Symposium on Collaborative Research in Applied Science*, Vancouver, BC, Canada, pp. 158-165, October 2005 (Reviewed Abstract).

C95. Pirmoradi, F., Sassani, F., and de Silva, C.W., "Fault Detection and Diagnosis in a Spacecraft Attitude Determination System," *Proceedings of the International Symposium on Collaborative Research in Applied Science*, Vancouver, BC, Canada, pp. 149-157, October 2005 (Reviewed Abstract).

C96. Tan, K.K., Huang, S., Lee, T.H., Putra, A.S., Teo, C.S., and de Silva, C.W., "Collaborative Research in Fault Detection and Diagnosis," *Proceedings of the International Symposium on Collaborative Research in Applied Science*, Vancouver, BC, Canada, pp. 142-148, October 2005 (Reviewed Abstract).

C97. Lu, Rose X., de Silva, Clarence W., Ang, Marcelo H., Poo, Jim A.N., and Corporaal, Henk, "A New Approach for Mechatronic System Design: Mechatronic Design Quotient (MDQ)," *Proceedings of the IEEE/ASME International Conference on Advanced Intelligent Mechatronics*, Monterey, CA, Paper No. 0-7803-9046-6/05/$20.00, IEEE, pp. 911-915, July 2005 (Full Paper Reviewed).

C98. Tang, P.L. and de Silva, C.W., "Stability and Optimality of Constrained Model Predictive Control with Future Input Buffering in Networked Control Systems," *Proceedings of the*

American Control Conference, Portland, OR, pp. 1245-150, June 2005 (Full Paper Reviewed).

C99.   Wang, Y. and de Silva, C.W., "An Object Transportation System with Multiple Robots and Machine Learning," *Proceedings of the American Control Conference*, Portland, OR, pp. 1371-1376, June 2005 (Full Paper Reviewed).

C100.   Rahbari, R., Leach, B.W., Dillon, J., and de Silva, C.W., "Expert System for an INS/DGPS Integrated Navigation Installed in a Bell 206 Helicopter," *Proceedings of the IEEE Aerospace Conference*, Big Sky, Montana, CD ROM Paper No. 1487, pp. 1-11, March 2004 (Full Paper Reviewed).

C101.   Tang, P.L. and de Silva, C.W. "Ethernet-based Predictive Control of an Industrial Hydraulic Machine," *Proceedings of the 42nd IEEE Conference on Decision and Control*, Maui, Hawaii, pp. 695-700, December 2003 (Full Paper Reviewed).

C102. Cao, Y. and de Silva, C.W., "Adaptive Control of a Manipulator with Flexible Joints Using Neural Networks," *Proceedings of the Tenth IEEE International Conference on Mechatronics and Machine Vision in Practice,* Perth, Australia, Paper No. 035 (CD-ROM), December 2003 **(Best Student Paper Award).**

C103.   Zhang, J. and de Silva, C.W., "Intelligent Hierarchical Control of a Space-Based Deployable Manipulator," *Proceedings of the Tenth IEEE International Conference on Mechatronics and Machine Vision in Practice,* Perth, Australia, Paper No. 032 (CD-ROM), December 2003 (Full Paper Reviewed).

C104. De Silva, C.W., "Sensing and Information Acquisition for Intelligent Mechatronic Systems," *Science and Technology of Information Acquisition and Their Applications, Proceedings of the Symposium on Information Acquisition*, Chinese Academy of Sciences, Hefei, China, pp. 9-18, November 2003 **(Published Keynote Talk).**

C105.   McCourt, R. and de Silva, C.W., "Application of Predictive Control for Autonomous Satellite Capture Using a Deployable Manipulator System," *Proceedings of the ASME International Mechanical Engineering Congress*, Washington, DC, CD ROM Paper IMECE2003-43718, November 2003 (Full Paper Reviewed).

C106.   Zhang, J. and de Silva, C.W., "Tuned Modal Control of a Space-Based Deployable Manipulator," *Proceedings of the ASME International Mechanical Engineering Congress*, Washington, DC, CD ROM Paper IMECE2003-43626, November 2003 (Full Paper Reviewed).

C107.   Tang, P.L. and de Silva, C.W., "Ethernet-Based Intelligent Switching of Controllers for Performance Improvement in an Industrial Plant," *Proceedings of the ASME International Mechanical Engineering Congress*, Washington, DC, CD ROM Paper IMECE2003-42281, November 2003 (Full Paper Reviewed).

C108.   De Silva, C.W., McCourt, R., and Ohmiya, M., "Control of a Multi-Module Deployable Manipulator Using RTX," *Proceedings of the 2003 IEEE Pacific Rim Conference on Communications, Computers and Signal Processing* (*PACRIM '03*), Victoria, BC, pp. 864-867, August 2003 (Reviewed Extended Abstract).

C109.   Cao, Y. and de Silva, C.W., "Neural Network Adaptive Control of a Space Platform-Based Deployable Manipulator," *Proceedings of the 2003 IEEE Pacific Rim Conference on Communications, Computers and Signal Processing* (*PACRIM '03*), Victoria, BC, pp. 860-863, August 2003 (Reviewed Extended Abstract).

C110. De Silva, C.W., Wong, K.H., and Modi, V.J., "Design Development of a Prototype Multi-module Manipulator," *Proceedings of the 2003 IEEE/ASME International Conference on Advanced Intelligent Mechatronics* (*AIM 2003*), Kobe, Japan, pp. 1384-1389, July 2003 (Full Paper Reviewed).

C111. Modi, V.J., Zhang, J., and de Silva, C.W., "Intelligent Hierarchical Modal Control of a Novel Manipulator with Slewing and Deployable Links," *53rd International Astronautical Congress*, Houston, Texas, U.S.A., Paper No. IAC-02-A.5.06, October 2002 (Full Paper Reviewed).

C112. Tang, P.L., de Silva, C.W., and Wang, X.G., "Intelligent Monitoring and Control of Industrial Processes through the Internet," *Proceedings of the ASME International Mechanical Engineering Congress and Exposition*, New Orleans, LA, CD ROM Paper IMECE2002-33441, 8 pages, November 2002 (Full Paper Reviewed).

C113. Rahbari, R., Barrie, W.L., Dillon, J,, and de Silva, C.W., "Adaptive Tuning of a Kalman Filter Using the Fuzzy Integral for an Intelligent Navigation System," *IEEE International Symposium on Intelligent Control*, Vancouver, Canada, pp. 252-257, October 2002 (Full Paper Reviewed).

C114. Zhang, J., Modi, V.J., and de Silva, C.W., "Modal Control with Intelligent Tuning for a Deployable Manipulator," *IEEE International Symposium on Intelligent Control*, Vancouver, Canada, pp. 154-159, October 2002 (Full Paper Reviewed).

C115. Cao, Y., Modi, V.J., and de Silva, C.W., "Neural Network Adaptive Control of a Deployable Manipulator," *IEEE International Symposium on Intelligent Control*, Vancouver, Canada, pp. 240-245, October 2002 (Full Paper Reviewed).

C116. Tang, P.L., de Silva, C.W., and Wang, X.G., "Monitoring and Control of a Wood-Drying Kiln via Virtual Project Stations," *IEEE International Symposium on Intelligent Control*, Vancouver, Canada, pp. 568-573, October 2002 (Full Paper Reviewed).

C117. De Silva, C.W., Zhang J., and Modi, V.J., "Intelligent Control of a Novel Manipulator with Slewing and Deployable Links," *The Ninth IEEE Conference on Mechatronics and Machine Vision in Practice*, Chang Mai, Thailand, pp. 261-266, September 2002 (Full Paper Reviewed).

C118. De Silva, C.W., Wong, K.H., and Modi, V.J., "Development of a Novel Multi-module Manipulator System: Dynamic Model and Prototype Design," *The Ninth IEEE Conference on Mechatronics and Machine Vision in Practice*, Chang Mai, Thailand, pp. 69-74, September 2002 (Full Paper Reviewed).

C119. Modi, V.J., Zhang, J., and de Silva, C.W., "Dynamics and Control of a Manipulator with Slewing and Deployable Links," *23rd International Symposium on Space Technology and Science*, Matsue, Japan, Paper No. ISTS 2002-d-09, May 2002; also in *AIAA/AAS Astrodynamics Specialist Conference*, Monterey, California, U.S.A., Paper No. AIAA-2002-4522, August 2002 (Full Paper Reviewed).

C120. Cao, Y., Modi, V.J., de Silva, C.W., and Misra, A.K., "Trajectory Tracking Control of a Multi-module Deployable Manipulator: Analyses and Experiments," *AAS/AIAA Astrodynamics Specialist Conference*, Quebec City, Quebec, Canada, Paper No. AAS 01-364, 2001 (Full Paper Reviewed).

C121. De Silva, C.W., "University-Industry Collaborative Research: Observations, Criticism, and Suggestions through Personal Experience," *Proceedings of The IEEE International*

Conference on Control Theory and Applications, Pretoria, South Africa, p.p. 557-563, December 12-14, 2001 **(Published Keynote Talk).**

C122. Tang, P.L., de Silva, C.W., and Poo, A.N., "The Application of Intelligent Adaptive Control in an Industrial Fish Cutting Machine," *Proceedings of The IEEE International Conference on Control Theory and Applications*, Pretoria, South Africa, p.p. 80-84, December 12-14, 2001 (Full Paper Reviewed).

C123. Komatsu, T., Modi, V.J., and de Silva, C.W., "Control of a Redundant Flexible Manipulator on a Space Platform", *Proceedings of the 16th International Symposium on Space Flight Dynamics*, Pasadena, CA, U.S.A, Program Chair: L. Alberto Cangahuala, December 2001 (Reviewed Extended Abstract).

C124. Rahbari, R. and de Silva, C.W., "Development of Intelligent Hierarchical Control for a Hydraulic Manipulator," *Proceedings of the ASME International Mechanical Engineering Congress and Exposition*, New York, NY, Vol. 2, DSC-24504, pp. 1-7, November 2001 (Full Paper Reviewed).

C125. Tang, P.L., de Silva, C.W., and Poo, A.N., "Development of Model-Referenced Fuzzy Adaptive Control," *Proceedings of the Joint 9th IFSA World Congress and 20th NAFIPS International Conference*, Vancouver, BC, Canada, pp. 1856-1861, July 2001 (Reviewed Extended Abstract).

C126. Wu, Q.M.J., Lee, M.F.R., and de Silva, C.W., "Intelligent 3-D Sensing of Manufacturing Processes – Experimental Investigation," *Proceedings of the Joint 9th IFSA World Congress and 20th NAFIPS International Conference*, Vancouver, BC, Canada, pp. 334-339, July 2001 **(Invited Paper).**

C127. Jain, A., de Silva, C.W., and Wu, Q.M.J., "Intelligent Fusion of Sensor Data for Product Quality Assessment in a Fish Cutting Machine," *Proceedings of the Joint 9th IFSA World Congress and 20th NAFIPS International Conference*, Vancouver, BC, Canada, pp. 316-321, July 2001 **(Invited Paper).**

C128. Tang, K.Z., Tan, K.K., de Silva, C.W., Lee, T.H., Tan, K.C., and Soh, S.Y., "Application of Vibration Sensing in Monitoring and Control of Machine Health," *Proceedings of the IEEE/ASME International Conference on Advanced Intelligent Mechatronics*, Como, Italy, Vol. I, pp. 377-382, July 2001 (Full Paper Reviewed).

C129. Wang, X.G., Liu, W., Gu, L., Sun, C.J., Gu, C.E., and de Silva, C.W., "Development of an Intelligent Control System for Wood Drying Processes," *Proceedings of the IEEE/ASME International Conference on Advanced Intelligent Mechatronics*, Como, Italy, Vol. I, pp. 371-376, July 2001 (Full Paper Reviewed).

C130. Wu, Q.M.J., Lee, M.F.R., and de Silva, C.W., "Intelligent 3-D Sensing in Automated Manufacturing Processes," *Proceedings of the IEEE/ASME International Conference on Advanced Intelligent Mechatronics*, Como, Italy, Vol. I, pp. 366-370, July 2001 (Full Paper Reviewed).

C131. Cao, Y., Modi, V.J., de Silva, C.W., and Misra, A.K., "Dynamics and Control of a Novel Space-Based Manipulator: Analyses and Experiments," *Proceedings of the International Symposium on Artificial Intelligence, Robotics and Automation in Space (I-SAIRAS)*, St. Hubert, Quebec, Canada, CD-ROM, Paper No. AM 068, June 2001 (Full Paper Reviewed).

C132. Tang, P.L., Poo, A.N., and de Silva, C.W., "Intelligent Model-Referenced Adaptive Control—A Comparative Evaluation," *Proceedings of the 5th International Conference on Mechatronics Technology*, Singapore, pp. 84-89, June 2001 (Full Paper Reviewed).

C133. Zhang, J., Modi, V.J., and de Silva, C.W., "Parametric Dynamical Study of a Novel Manipulator," *Proceedings of the 9th International Conference of Pacific-Basin Societies*, Pasadena, California, U.S.A., November 2001, Editors: P.M. Bainum, V.J. Modi, J. Li, and T. Nakajima, AAS Publications Office, San Diego, California, U.S.A., Vol. 110, Paper No. AAS 01-517, pp. 115-136, 2001 (Full Paper Reviewed).

C134. Tang, P.L., Poo, A.N., and de Silva, C.W., "Application of Model-Referenced Adaptive Control in the Slewing Control of a Gyroscope," *Proceedings of the IASTED International Conference on Modelling and Simulation*, Pittsburgh, PA, pp, 54-59, May 2001 (Full Paper Reviewed).

C135. Modi, V.J., Cao, Y., Chen, Y., de Silva, C.W., and Misra, A.K., "Trajectory Tracking Experiments Using a Novel Manipulator," *51st International Astronautical Congress*, Rio de Janeiro, BrazilPaper No. IAF-00-A.3.02, October 2000 (Full Paper Reviewed).

C136. Choi, J., de Silva, C.W., Modi, V.J., and Misra, A.K., "Fuzzy Sliding-Mode Control of a Variable Geometry Manipulator: Experimental Investigations," *Proceedings of the ASME Dynamic Systems and Control Division*, International Mechanical Engineering Congress and Exposition, Orlando, FL, pp. 427-434, November 2000 (Full Paper Reviewed).

C137. Cao, Y., Modi, V.J., de Silva, C.W., M. Chu, Y. Chen and Misra, A.K., "Trajectory Tracking Experiments Using A Novel Manipulator," *51st International Astronautical Congress*, Rio de Janeiro, Brazil, Paper No. IAF-00-A.3.02, October 2000 (Full Paper Reviewed).

C138. Cao, Y., Modi, V.J., de Silva, C.W., and Misra, A.K., "A New Class of Multi-module Deployable Manipulators: Analyses and Experiments," *22nd International Symposium on Space Technology and Science*, Morioka, Japan, Paper No. ISTS 2000-s-13; also Proceedings of the Symposium, Editor-in-Chief: Y. Arakawa, Sanbi Insatsu Company Ltd. Publisher, Tokyo, Japan, Vol. 2, pp. 2197-2204, May-June 2000 (Full Paper Reviewed; **President of the Japan Society for Aeronautical and Space Sciences Award for the Best Paper and Excellence in Presentation).**

C139. Cao, Y., Modi, V.J., de Silva, C.W., and Misra, A.K., "Dynamics of a Class of Novel Manipulators with Deployable Links," *AIAA/AAS Astrodynamics Specialist Conference*, Denver, Colorado, August 2000, Paper No. AIAA-2000-4536; Also, as "Dynamics of a Manipulator with Slewing and Deployable Links," *Proceedings of the 22nd International Symposium on Space Technology and Science*, Morioka, Japan, Paper No. ISTS 2000-d-25v, also in CD ROM of conference proceedings, May-June 2000 (Full Paper Reviewed).

C140. Yan, G.C.K., de Silva, C.W., and Wang, X.G., "Simulations and Experiments on Intelligent Control of a Wood-Drying Kiln," *Proceedings of the IFAC Symposium on Artificial Intelligence in Real-Time Control*, Budapest, Hungary, pp.75-79, October 2000 (Reviewed Extended Abstract).

C141. De Silva, C.W., "Integration of Sensing and Control technologies in the Automation of Industrial Processes," *Proceedings of the Engineering Jubilee Congress*, Peradeniya, Sri Lanka, pp. 271-276, June 2000 (Full Paper Reviewed).

C142. Lee, R.M.F., de Silva, C.W., Croft, E.A., and Wu, Q.M.J., "Structured Light based Whole-Field 3-D Sensing System," *Proceedings of the World Automation Congress*, Maui, Hawaii, Paper ISOMA-061 (pp. 1-6), June 2000 (CD ROM, Full Paper Reviewed).

C143. Yan, G.C.K., de Silva, C.W., and Wang, X.G., "Intelligent Control of a Kiln for Wood Drying," *Proceedings of the World Automation Congress*, Maui, Hawaii, Paper ISIAC-136 (pp.1-10), Also in *Intelligent Automation and Control* (M. Jamshidi, P. Borne, and J.S. Jamshidi, Editors), TSI Press, Albuquerque, NM, pp. 521-530, June 2000 (Full Paper Reviewed).

C144. Min, B., Misra, A.K., Cyril, X., Modi, V.J., and de Silva, C.W., "Simulation of the Dynamics of Space Systems Using Object-Oriented Modeling," *AIAA Modeling and Simulation Technologies Conference*, Denver, Colorado, U.S.A., Paper No.AIAA-2000-4177, August 2000 (Full Paper Reviewed).

C145. Omar, F. and de Silva, C.W., "Modeling and Sensory Technology for Optimal Portion Control in Can-Filling Process of Fish," *Proceedings of the IASTED International Conference on Modeling and Simulation*, Pittsburgh, PA, pp. 21-27, May 2000 (Full Paper Reviewed).

C146. Chen, Y., Modi, V.J., de Silva, C.W., and Misra, A.K., "Trajectory Optimization for a Manipulator System with Redundant Degrees of Freedom," *AIAA Guidance, Navigation, and Control Conference*, Denver, Colorado, U.S.A., Paper No. AIAA-2000-4379, August 2000 (Full Paper Reviewed).

C147. Modi, V.J., Cao, Y., de Silva, C.W., and Misra, A.K., "A Class of Novel Space-Based Manipulators with Slewing and Deployable Links: Analyses and Experiments," *Proceedings of the Eighth Conference on Nonlinear Vibrations, Stability, and Dynamics of Structures*, Virginia Polytechnic Institute and State University, Blacksburg, VA, U.S.A. Editor: A.H., Nayfeh, VPI & SU Publisher, Paper No. Session 15-2, July 2000 (Full Paper Reviewed).

C148. Cao, Y., Modi, V.J., de Silva, C.W., and Misra, A.K., "On the Control of a Novel Manipulator with Slewing and Deployable Links," *50th International Astronautical Congress,* Amsterdam, the Netherlands, Paper No. IAF-99-A.5.06, October 1999 (Full Paper Reviewed).

C149. Chu, M., Modi, V.J., de Silva, C.W., and Misra, A.K., "Design and Development of a Variable Geometry Prototype Manipulator," *Proceedings of the Dynamics and Control Division*, ASME International Mechanical Engineering Congress and Exposition, Nashville, Tennessee, DSC-Vol. 67, pp. 907-914, November 1999 (Full Paper Reviewed).

C150. Wong, K.H., Modi, V.J., de Silva, C.W., and Misra, A.K., "Design and Development of a Multi-Module Deployable Manipulator," *Proceedings of the Dynamics and Control Division*, ASME International Mechanical Engineering Congress and Exposition, Nashville, Tennessee, DSC-Vol. 67, pp. 815-822, November 1999 (Full Paper Reviewed).

C151. Cao, Y., Modi, V.J., de Silva, C.W., and Misra, A.K., "On the Control of Space Platform-Based Variable Geometry manipulator," *AAS/AIAA Astrodynamics Specialist Conference*, Girdwood, Alaska, U.S.A., Paper No. AAS 99-319, August 1999 (Full Paper Reviewed).

C152. Min, B., Misra, A.K., Cyril, X., Modi, V.J., and de Silva, C.W., "Object Oriented Modeling of the Dynamics of Flexible Multibody Systems," *AAS/AIAA Astrodynamics*

Specialist Conference, Girdwood, Alaska, U.S.A., Paper No. AAS 99-454, August 1999 (Full Paper Reviewed).

C153. Wong, K.H., Modi, V.J., de Silva, C.W., and Misra, A.K., "Design of a Novel Multi-Module Manipulator," *Proc.IASTED International Conference on Control and Applications*, Banff, Canada, pp.539-544, July 1999 (Full Paper Reviewed).

C154. Goulet, J.F., de Silva, C.W., Modi, C.W., and Misra, A.K., "Intelligent Hierarchical Control of a Space-Based Manipulator System," *Proc.IASTED International Conference on Control and Applications*, Banff, Canada, pp.527-532, July 1999 (Full Paper Reviewed).

C155. Choi, J., de Silva, C.W., Modi, C.W., and Misra, A.K., "Fuzzy Sliding-Mode Control of a Deployable Manipulator," *Proc.IASTED International Conference on Control and Applications*, Banff, Canada, pp.497-502, July 1999 (Full Paper Reviewed).

C156. Cao, Y., Modi, V.J., de Silva, C.W., and Misra, A.K., "Controller Design for Space Platform-Based Variable Geometry Manipulators," *Proc. IASTED International Conference on Control and Applications*, Banff, Canada, pp.436-441, July 1999 (Full Paper Reviewed).

C157. Yan, G., de Silva, C.W., and Wang, X.G., "Modeling and Adaptive Control of a Kiln Dryer for Wood," *Proc.IASTED International Conference on Control and Applications*, Banff, Canada, pp.144-149, July 1999 (Full Paper Reviewed).

C158. Zhang, J., Modi, V.J., de Silva, C.W., and Misra, A.K., "An Assessment of Flexibility Effects for a Novel Manipulator," *Proceedings of the 8th International Conference of Pacific-Basin Scieties*, Xi'an, China, Editors: K.T. Vesugi, et al., Chinese Society of Astronautics Publication, pp. 22-26, June 1999 (Full Paper Reviewed).

C159. Omar, F. and de Silva, C.W., "Computational Optimization of Portion Control in an Automated Can-Filling Process," *Proc. American Control Conference,* San Diego, CA, Vol. 1, pp. 242-246, June 1999 (Full Paper Reviewed).

C160. Kim, S.W., Misra, A.K., Modi, V.J., Cyril, X., and de Silva, C.W., "Contact Dynamics and Force Control of Space Robotics Systems," *IFAC Worshop on Space Robotics*, Montreal, Canada, October 1998 (Full Paper Reviewed).

C161. Goulet, J.F., de Silva, C.W., Modi, V.J., and Misra, A.K., "Intelligent Hierarchical Control of a Variable-Geometry Manipulator," *Proc. International Symposium on Robotics and Automation,* Saltillo, Mexico, pp. 191-198, December 1998 **(Invited Paper).**

C162. De Silva, C.W., "Application of Intelligent Monitoring and Control in Automated Industrial Processes," *Proc. International Mechanical Engineering Congress and Exposition*, Anaheim, CA, DSC-Vol.64, ASME, NY, pp. 777-784, November 1998 **(Invited Paper).**

C163. Chen Y., Modi, V.J., de Silva, C.W., and Misra, A.K., "Manipulators with Slewing and deployable Links: A General Formulation with Applications," *A Collection of Technical Papers*, *Proceedings of the AIAA Guidance, Navigation, and Control Conference*, Boston, MA, Paper No. AIAA 98-4129, August 1998. (Full Paper Reviewed).

C164. De Silva, C.W. and Omar, F., "Automation and Optimization of the Can-Filling Process of Fish," *Proc. 8th IFAC Symposium on Large Scale Systems Theory and Applications*, Patras, Greece, Vol. 1, pp. 342-347, July 1998 (Reviewed Abstract).

C165. De Silva, C.W., "Robotization and Its Benefits," *Proc. IASTED International Conference on Intelligent Systems and Control*, Halifax, Nova Scotia, pp. 197-200, June 1998 (Full Paper Reviewed).

C166. De Silva, C.W., Croft, E.A., and Singh, G., "Modeling of Weight Distribution of Fish in Position Control for Automated Can Filling," *Proc. IASTED International Conference on Modeling and Simulation*, Pittsburgh, PA, pp. 283- 287, May 1998 (Full Paper Reviewed).

C167. Kang, C.G., Gu, J.H., and de Silva, C.W., "Efficient Trajectory Planning for Position and Orientation of a PUMA Robot," *Proc. 1998 World Automation Congress*, Anchorage, Alaska, TSI Press, Albuquerque, NM, pp. 639-644, May 1998 (Full Paper Reviewed).

C168. Gu, J.H. and de Silva, C.W., "Use of Mechanical Impedance in Robotic Task Control," *Proc. 1998 World Automation Congress*, Anchorage, Alaska, TSI Press, Albuquerque, NM, pp. 539-544, May 1998 (Full Paper Reviewed).

C169. Chu, M., Modi, V.J., de Silva, C.W., and Misra, A.K., "Planar Dynamics of a Novel Mobile Manipulator with Flexible Joints and Slewing-Deployable Modules," *Proc. 1998 World Automation Congress*, Anchorage, Alaska, TSI Press, Albuquerque, NM, pp. 345-350, May 1998 (Full Paper Reviewed).

C170. Chen, Y., de Silva, C., and Modi, V.J., "Dynamical Design of a Novel Variable Geometry Manipulator," *6th Annual IRIS-PRECARN Conference, Networks of Centers of Excellence Program,* Montreal, Canada, June 1996; also as Chen, Y., Caron, M., Modi, V.J., de Silva, C.W., and Misra, A.K., "Dynamic Modeling of a Variable Geometry Manipulator with Separation of Fine and Gross Manipulations," *Proceedings of the Second International Symposium on the Intelligent Automation and Control, World Automation Congress*, Anchorage, Alaska, U.S.A., May 1998, Editors: M. Jamshidi and C. W. de Silva, Paper No. ISIAC-138, pp. 467-474, May 1998 (Full Paper Reviewed).

C171. Lee, M.F., de Silva, C.W., Croft, E.A., and Park, H.J., "Automated Screening of Metal Can Defects Using Machine Vision," *Proc. 1998 World Automation Congress*, Anchorage, Alaska, TSI Press, Albuquerque, NM, pp. 569-574, May 1998 (Full Paper Reviewed).

C172. Gu, J.H. and de Silva, C.W., "Estimation and Interpretation of Mechanical Impedance in Robotic Processing of Inhomogeneous Material," *Proceedings of the ASME International Mechanical Engineering Congress and Exposition*, Dallas, TX, DSC-Vol. 61, pp. 233-239, November 1997. (Full Paper Reviewed).

C173. De Silva, C.W., "Intelligent Supervision and Control of Industrial Processes," *Proceedings of the IFAC Symposium on Artificial Intelligence in Real-Time Control*, Kuala Lumpur, Malaysia, pp. 167-172 , September 1997. **(Published Keynote Talk).**

C174. Gu, J.H. and de Silva, C.W., "Client-Server Architecture for Implementing Real-Time Robot Control in Industrial Processes," *Proceedings of the Asian Control Conference*, Seoul, Korea, Vol. 3, pp. 259-262, July 1997. (Reviewed Extended Abstract).

C175. De Silva, C.W., "Some Recent Developments of Intelligent Quality Assessment in Automated Fish Processing," *Proc. 7th IFSA World Congress,* Prague, Czech Republic, Vol. IV, pp. 370-375, June 1997. **(Invited Paper).**

C176. De Silva, C.W. and Wickramarachchi, N. "An Innovative Machine for Automated Cutting of Fish," *Proc. Int. Conference on Advanced Intelligent Mechatronics*, Tokyo, Japan, CD ROM Proc. 97TH8298, June 1997. (Full Paper Reviewed).

C177. Rahbari, R., Meech, J.A., and de Silva, C.W., "INTELLIGENT TUTORING SYSTEM: An Expert-System Trainer for Herring Roe Grading," *Proceedings of the American Control Conference*, Albuquerque, NM, Vol. 5, pp. 3171-3175, June 1997. (Full Paper Reviewed).

C178. Omar, F. and de Silva, C.W., "Estimation of the Weight Distribution Function of a Complex Object for Portion Control in an Innovative Can Filling System," *Proceedings of the American Control Conference*, Albuquerque, NM, Vol. 1, pp. 595-599, June 1997. (Full Paper Reviewed).

C179. De Silva, C.W. and Wickramarachchi, N., "An Intelligent Supervisory Control System for a Fish Processing Workcell," *Proceedings of the International Conference on Conventional and Knowledge-Based Intelligent Electronic Systems*", Adelaide, Australia, Vol. 2, pp. 470-477, May 1997. (Full Paper Reviewed).

C180. De Silva, C.W., "Application of Fuzzy Logic and Approximate Reasoning in Process Automation," *Proc. Int. Conference on Conventional and Knowledge-Based Intelligent Electronic Systems*, Adelaide, Australia, Vol. 1, pp. 20-26, May 1997. **(Published Keynote Talk).**

C181. De Silva, C.W., "Application of Robots in Fish Processing," *Proceedings of the IASTED International Conference on Modeling and Simulation*, Pittsburgh, PA, pp. 172-175, April 1997. (Full Paper Reviewed).

C182. Singh, G., de Silva, C.W., and Croft, E.A., "Flexible Automation of Can-Filling Operation in Fish-Processing Automation," *Proceedings of the ASME International Mechanical Engineering Congress and Exposition*, Atlanta, GA, DSC-Vol. 58, pp. 229-234, November 1996. (Full Paper Reviewed).

C183. Croft, E.A., de Silva, C.W., and Kurnianto, S., "Sensor Technology Integration and Intelligent Decision Making in an Industrial Prototype for Herring Roe Grading," *Proceedings of the ASME International Mechanical Engineering Congress and Exposition*, Atlanta, GA, DSC-Vol. 58, pp. 789-796, November 1996. (Full Paper Reviewed).

C184. Tafazoli, S., Peussa, P., Lawrence, P.D., Salcudean, S.E., and de Silva, C.W., "Differential PWM Operated Solenoid Valves in the Pilot Stage of Mini Excavators: Modeling and Identification," *Proceedings of the ASME International Mechanical Engineering Congress and Exposition*, Atlanta, GA, FPST-Vol. 3, pp. 93-99, November 1996. (Full Paper Reviewed).

C185. Gu, J.H. and de Silva, C.W., "Interpretation of Mechanical Impedance Profiles for Intelligent Control of Robotic Meat Processing," *Proceedings of the 22nd IEEE Industrial Electronics Conference*, Taipei, Taiwan, pp. 507-512, August 1996 (Full Paper Reviewed).

C186. Caron, M., Modi, V.J., Pradhan, S., de Silva, C.W., and Misra, A.K., "Planar Dynamics of Flexible Manipulators with *N* Slewing Deployable Links," *Proceedings of the AIAA/AAS Astrodynamics Specialists Conference*, San Diego, CA, pp. 491-505, July 1996. (Full Paper Reviewed).

C187. Tafazoli, S., de Silva, C.W., and Lawrence, P.D., "Friction Modeling and Compensation in Tracking Control of an Electrodynamic Manipulator," *Proceedings of the 4th IEEE Mediterranean Symposium on New Directions in Control and Automation*, Crete, Greece, pp. 375-380, June 1996. (Full Paper Reviewed).

C188. De Silva, C.W. and Gu, J.H., "Use of Mechanical Impedance in Sensing Object-End Effector Interaction," *Proceedings of the IEEE International Symposium on Industrial Electronics*, Warsaw, Poland, Vol. 1, pp. 60-65, June 1996. (Full Paper reviewed).

C189. De Silva, C.W., "Intelligent Control of Robotic Fish Processing," *Proceedings of the 2nd World Automation Congress*, Montpellier, France, pp. 223-228, May 1996. **(Invited Paper).**

C190. Tafazoli, S., Lawrence, P.D., Salcudean, S.E., Bachmann, S., and de Silva, C.W., "Parameter Estimation and Actuator Friction Analysis for a Mini Excavator," *Proceedings of the IEEE International Conference on Robotics and Automation*, Minneapolis, Minnesota, Vol. 1, pp. 329-334, April 1996. (Reviewed Extended Abstract).

C191. De Silva, C.W., "Modeling and Mechanical Analysis of a Robotic Gripper," *Proceedings of the IASTED International Conference on Modeling and Simulation*, Pittsburgh, PA, pp. 201-204, April 1996 (Full Paper reviewed).

C192. De Silva, C.W., "Intelligent Control for Robotics: A Perspective," *Proceedings of the International Workshop on Some Critical Issues in Robotics*, Singapore, pp. 129-153, October 1995 **(Invited Paper).**

C193. Wu Q.M., de Silva, C.W., Beatty, A., Cao, L., Gamage, L., Gosine, R., and Kurnianto, S., "Knowledge-Based System for On-Line Grading of Herring Roe," *Proceedings of the IEEE International Conference on Systems, Man, and Cybernetics*, Vancouver, B.C., Vol. 4, pp. 3742-3747, October 1995. (Reviewed Extended Abstract).

C194. De Silva, C.W. and Gu, J.H., "On-Line Sensing and Modeling of Mechanical Impedance in Robotic Food Processing," *Proceedings of the IEEE International Conference on Systems, Man, and Cybernetics*, Vancouver, B.C., Vol. 2, pp. 1693-1698, October 1995. (Reviewed Extended Abstract).

C195. Tafazoli, S., de Silva, C.W., and Lawrence, P.D., "Position and Force Control of an Electrohydraulic Manipulator in the Presence of Friction," *Proceedings of the IEEE. International Conference on Systems, Man, and Cybernetics*, Vancouver, B.C., Vol. 2, pp. 1687-1692, October 1995. (Reviewed Extended Abstract).

C196. Wickramarachchi, N. and de Silva, C.W., "An Investigation of the Effect of Fuzzy Resolution on Control Inference Using Explicit Relationships," *Proceedings of the IEEE International Conference on Systems, Man, and Cybernetics*, Vancouver, B.C., Vol. 1, pp. 829-834, October 1995. (Reviewed Extended Abstract).

C197. Hu, B.G., Gosine, R.G., and de Silva, C.W., "Classifier Design for Computer Grading Systems for Food Processing," *Proceedings of the IEEE International Conference on Systems, Man, and Cybernetics*, Vancouver, B.C., Vol. 1, pp. 730-735, October 1995. (Reviewed Extended Abstract).

C198. De Silva, C.W., "Intelligent Control of Industrial Processes," *Proceedings of the IASTED International Conference on Modeling and Simulation*, Colombo, Sri Lanka, pp. 151-154, July 1995. (Reviewed Extended Abstract).

C199. Zhou, Y. and de Silva, C.W., "Adaptive Control of an Industrial Robot with an Open Architecture Controller," *Proceedings of the American Control Conference*, Seattle, WA, Vol. 3, pp. 2334-2338, June 1995. (Full Paper Reviewed).

C200. Tafazoli, S., de Silva, C.W., and Lawrence P.D., "Friction Estimation in a Planar Electrohydraulic Manipulator," *Proceedings of the American Control Conference*, Seattle, WA, Vol. 5, pp. 3294-3298, June 1995. (Full Paper Reviewed).

C201. Dong, C., de Silva, C.W., and Gosine, R.G., "Image Processing for Data Analysis in Automated Fish Marking," *Proceedings of the IASTED International Conference on Modeling and Simulation*, Pittsburgh, PA, pp. 479-482, April 1995. (Reviewed Extended Abstract).

C202. Modi, V.J., Chen, Y., Misra, A.K., de Silva, C.W., and Marom, I., "Nonlinear Dynamics and Control of a Class of Variable Geometry Mobile Manipulators," *Proceedings of the 5th International Conference on Adaptive Structures*, Sendai, Japan, December 1994, Editor: J. Tani, Technomic Publishing Co., Inc., Lancaster, PA, U.S.A., pp. 140-149, December 1994 **(Invited Paper).**

C203. Wickramarachchi, N. and de Silva, C.W., "Task Sensing : An Approach to Evaluating Machine Performance," *Proceedings of the ASME International Mechanical Engineering Congress and Exposition*, Chicago, IL, DSC-Vol. 55-1, pp. 423-429, Nov. 1994. (Full Paper Reviewed).

C204. Gu, J. and de Silva, C.W., "Fuzzy Decision Making in Variable Structure Control Systems," *Proceedings of the ASME International Mechanical Engineering Congress and Exposition*, Chicago, IL, DSC-Vol. 55-1, pp. 483-492, Nov. 1994. (Full Paper Reviewed).

C205. De Silva, C.W., Dong, C., Gosine, R. and Yang, J., "Design of an Automated Fish Marking Machine," *Proceedings of the IEEE International Conference on Systems, Man, and Cybernetics*, San Antonio, TX, Vol. 1, pp. 171-176, Oct. 1994. (Reviewed Extended Abstract).

C206. Gu, J. and de Silva, C.W., "A Procedure for Dynamic Sharing of Components in Multiple-Workcell Process Plants," *Proceedings of the American Control Conference*, Baltimore, MD, Vol. 1, pp. 289-293, June 1994. (Full Paper Reviewed).

C207. Wickramarachchi, N. and de Silva, C.W., "An Intelligent Sensor for Assessment of the Quality of Fish Processing," *Proceedings of the IFAC Symposium on Intelligent Components and Instruments for Control Applications*, Budapest, Hungary, pp. 54-59, June 1994 **(Invited Paper).**

C208. Gu, J. and de Silva, C.W., "Dynamic Restructuring of Flexible Production Systems," *Proceedings of the IFAC Symposium on Intelligent Components and Instruments for Control Applications*, Budapest, Hungary, pp. 71-76, June 1994 **(Invited Paper).**

C209. Bussani, F. and de Silva, C.W., "Use of the Finite Element Method to Model Machine Processing of Salmon," *Proceedings of the ANSYS Conference*, Pittsburgh, PA, Vol. 1, pp. 4.3-12, May 1994. (Full Paper Reviewed).

C210. Cao, L., de Silva, C.W., and Gosine, R.G., "A Knowledge-Based Fuzzy Classification System for Herring Roe Grading," *ASME Winter Annual Meeting*, New Orleans, LA, DSC-Vol. 48, ASME, New York, pp. 47-56, November 1993 (Full Paper Reviewed).

C211. De Silva, C.W., Wu, Q.M., and Zhou, Y., "Intelligent Control Experiments Using a Retrofitted Industrial Robot," *ASME Winter Annual Meeting*, New Orleans, LA, DSC-Vol. 48, ASME, New York, pp. 21-29, November 1993 (Full Paper Reviewed).

C212. Zhou, Y. and de Silva, C.W., "Real-Time Control Experiments Using an Industrial Robot Retrofitted with an Open-Structure Controller," *Proceedings of the IEEE International Conference on Systems, Man, and Cybernetics*, Le Touquet, France, Vol. 4, pp. 553-559, October 1993 (Reviewed Extended Abstract).

C213. De Silva, C.W., "Hierarchical Processing of Information in Fuzzy Logic Control Applications," *Proceedings of the 2nd IEEE Conference on Control Applications*, Vancouver, B.C., Vol. 1, pp. 457-461, September 1993 **(Invited Paper).**

C214. Wu, Q.M. and de Silva, C.W., "The Effect of Fuzzy Resolution in Servo Tuning," *Proceedings of the 2nd IEEE Conference on Control Applications*, Vancouver, B.C., Vol. 1, pp. 77-82, September 1993 (Full Paper Reviewed).

C215. De Silva, C.W., "Knowledge-Based Dynamic Structuring of Process Control Systems," *Proc. Fifth International Fuzzy Systems Association (IFSA) World Congress*, Seoul, Korea, Vol. II, pp. 1137-1140, July 1993 (Reviewed Extended Abstract).

C216. Wu, Q.M. and de Silva, C.W., "Model Identification for Fuzzy Dynamic Systems," *Proceedings of the 1993 American Control Conference*, San Francisco, California, Vol. 3, pp. 2246-2247, June 1993. (Full Paper Reviewed).

C217. De Silva, C.W. and Wang, Y., "Use of Kinematic Redundancy for Design Optimization in Space-Robot Systems," *Proceedings of the 1993 American Control Conference*, San Francisco, California, Vol. 2, pp. 1806-1810, June 1993. (Full Paper Reviewed).

C218. De Silva, C.W., "Knowledge Base Decoupling in Fuzzy-Logic Control Systems," *Proceedings of the 1993 American Control Conference*, San Francisco, California, Vol. 1, pp. 760-764, June 1993. (Full Paper Reviewed).

C219. Dong, C., de Silva, C.W., and Gosine, R.G., "Particle Retention Measurement Using Image Processing for a Spray Marking System," *Proceedings of the IEEE Pacific Rim Conference on Communications, Computers and Signal Processing*, Victoria, B.C., Vol. 2, pp. 790-793, May 1993. (Reviewed Extended Abstract).

C220. Gamage, L.B., de Silva, C.W. and Gosine, R.G., "Statistical Pattern Recognition for Cutter Positioning in Automated Fish Processing," *Proceedings of the IEEE Pacific Rim Conference on Communications, Computers and Signal Processing*, Victoria, B.C., Vol. 2, pp. 786-789, May 1993. (Reviewed Extended Abstract).

C221. Wickramarachchi, N. and de Silva, C.W., "Vision-Based Quality Determination in a Hierarchical System for Fish Processing," *Proceedings of the IEEE Pacific Rim Conference on Communications, Computers and Signal Processing*, Victoria, B.C., Vol. 2, pp. 710-713, May 1993. (Reviewed Extended Abstract).

C222. Bussani, F. and de Silva, C.W., "Use of Image Processing in the Development of a Dynamic Model for Fish Processing," *Proceedings of the IEEE Pacific Rim Conference on Communications, Computers and Signal Processing*, Victoria, B.C., Vol. 2, pp. 706-709, May 1993. (Reviewed Extended Abstract).

C223. Wu, Q.M. and de Silva, C.W., "Automatic Adjustment of the Cutting Position of a Vision-Based Fish Processing Machine," *Proceedings of the IEEE Pacific Rim Conference on Communications, Computers and Signal Processing*, Victoria, B.C., Vol. 2, pp. 702-705, May 1993. (Reviewed Extended Abstract).

C224. Beatty, A., Gosine, R.G. and de Silva, C.W., "Recent Developments in the Application of Computer Vision for Automated Herring Roe Assessment," *Proceedings of the IEEE Pacific Rim Conference on Communications, Computers and Signal Processing*, Victoria, B.C., Vol. 2, pp. 698-701, May 1993. (Reviewed Extended Abstract).

C225. Peng, J. and de Silva, C.W., "Stability Analysis of Structurally Varying Systems," *Proceedings of the IASTED International Conference on Modeling and Simulation*, Pittsburgh, PA, pp. 310-312, May 1993. (Reviewed Extended Abstract).

C226. De Silva, C.W. and Wickramarachchi, N., "Knowledge Base Development for an Intelligent Control System of a Process Workcell," *Intelligent Control Systems*, DSC-Vol. 45, Winter Annual Meeting, ASME, New York, pp. 113-119, Nov. 1992. (Full Paper Reviewed).

C227. De Silva, C.W. and Barlev, S., "Experiments with an Intelligent Servo Motor System," *Intelligent Control Systems*, DSC-Vol. 45, Winter Annual Meeting, ASME, New York, pp. 17-23, Nov. 1992. (Full Paper Reviewed).

C228. De Silva, C.W. and Saliba, M., "Instrumentation Issues in the Handling of Fish for Automated Processing," *Proceedings of the IEEE Industrial Electronics Conference - IECON '92*, San Diego, CA, Vol. 2, pp. 789-794, Nov. 1992. (Reviewed Extended Abstract).

C229. De Silva, C.W., "Technology Development for the Flexible Automation of Fish Processing," *Proc. IEEE TENCON*, Melbourne, Australia, pp. 794-798, Nov. 1992 **(Invited Paper).**

C230. Gamage, L.B. and de Silva, C.W., "Rule-Based Contour Generation for Robotic Processes," *Proceedings of IEEE TENCON*, Melbourne, Australia, pp. 649-653, Nov. 1992. (Full Paper Reviewed).

C231. De Silva, C.W., Wu, Q.M., and Barlev, S., "Enhancement of a Fuzzy Tuner with Neural Networks for a Servo Controller," *Proceedings of the IASTED International Conference on Control and Robotics*, Vancouver, pp. 326-329, August 1992. (Reviewed Extended Abstract).

C232. De Silva, C.W. and Barlev, S., "Hardware Implementation and Evaluation of a Knowledge-Based Tuner for a Servo System," *Proceedings of the IFAC Symposium on Adaptive Systems in Control and Signal Processing,* Grenoble, France, pp. 293-298, July 1992 **(Invited Paper).**

C233. De Silva, C.W. and Wickramarachchi, N., "Use of Intelligent Tuning in a Hierarchical Control System for Automated Fish Processing," *Proceedings of the IFAC Symposium on Adaptive Systems in Control and Signal Processing,* Grenoble, France, pp. 139-144, July 1992 **(Invited Paper).**

C234. Peng, J. and de Silva, C.W., "On Modeling and Stability Analysis of Structurally-Varying Dynamic Systems," *Proceedings of the American Control Conference,* Chicago, IL, Vol. 4, pp. 2666-2670, June 1992 (Full Paper Reviewed).

C235. De Silva, C.W., "Use of Kinematic Redundancy for Minimizing Dynamic Interaction in Space-Station Robots," *Proceedings of the 23rd Modeling and Simulation Conf.,* Pittsburgh, PA, Vol. 23, Part 4, pp. 2231-2238, April 1992 (Reviewed Extended Abstract).

C236. Barlev, S. and de Silva, C.W., "Implementation and Evaluation of Fuzzy Tuner for an Ill-Defined Servo-Motor System," *Proc. 3rd ASME Northwest Int. Region VIII Graduate Student Technical Conf.,* Pullman, WA, pp. 1-2, April 1992 (Reviewed Abstract).

C237. Wickramarachchi, N. and de Silva, C.W., "A Knowledge-Based Hierarchical Control Structure for Automated Fish Processing," *Proc. 3rd ASME Northwest Int. Region VIII Graduate Student Technical Conf.,* Pullman, WA, pp. 1-2, April 1992 (Reviewed Abstract).

C238. De Silva, C.W. and Riahi, N., "System Integration and Image Processing Techniques in a Fish Processing Workcell," *ASME Winter Annual Meeting,* Atlanta, GA, DSC-Vol. 30, pp. 59-64, December 1991 (Full Paper Reviewed).

C239. Gamage, L.B. and de Silva, C.W., "A Model-Based Approach for On-Line Extraction of Complex Features through Image Processing," *ASME Winter Annual Meeting*, Atlanta, GA, DSC-Vol. 30, pp. 73-78, December 1991 (Full Paper Reviewed).

C240. De Silva, C.W., "Fuzzy Information and Degree of Resolution Within the Context of a Control Hierarchy," *Proceedings of the IEEE International Conference on Industrial Electronics, Control, and Instrumentation,* Kobe, Japan, IEEE 91CH2976-9, pp. 1590-1595, October 1991 (Reviewed Extended Abstract).

C241. Saliba, M. and de Silva, C.W., "An Innovative Robotic Gripper for Grasping and Handling," *Proceedings of the IEEE International Conference on Industrial Electronics, Control, and Instrumentation,* Kobe, Japan, IEEE 91CH2976-9, pp. 975-979, October 1991 (Reviewed Extended Abstract).

C242. De Silva, C.W., "Simulation Studies of an Analytical Fuzzy Tuner for a PID Servo," *Proceedings of the American Control Conference*, Boston, MA, IEEE 91CH2939-7, Vol. 2, pp. 2100-2105, June 1991 (Full Paper Reviewed).

C243. De Silva, C.W., "Gauging and Positioning Issues of Robotic Fish Processing," *Proceedings of the Fifth IEEE International Conference on Advanced Robotics*, Pisa, Italy, IEEE 91THO376-4, Vol. 1, pp. 291-296, June 1991 (Full Paper Reviewed).

C244. Peng, J. and de Silva, C.W., "Analysis of Structurally-Varying Systems Using Component-Mode Synthesis Technique," *Proceedings of the 13th Canadian Congress of Applied Mechanics*, Winnipeg, Manitoba, ISBN 0920049-04, Vol. 1, pp. 246-247, June 1991 (Reviewed Abstract).

C245. De Silva, C.W., Riahi, N., and Gamage, L.B., "Image Processing Techniques for Position and Orientation Measurements in Fish Processing Automation," *Proceedings of the 22nd Modeling and Simulation Conference*, Pittsburgh, PA, Vol. 22, pp. 1528-1535, May 1991 (Reviewed Extended Abstract).

C246. De Silva, C.W. and Shibly, H.A., "Modeling of Friction in Robot Dynamics," *Proceedings of the 22nd Modeling and Simulation Conference*, Pittsburgh, PA, Vol. 22, pp. 1784-1791, May 1991 (Reviewed Extended Abstract).

C247. Gamage, L.B. and de Silva, C.W., "A Model Based Computer Vision Approach for the Cutting Contour Generation in Automated Fish Processing," *Proceedings of the 22nd Modeling and Simulation Conference*, Pittsburgh, PA, Vol. 22, pp. 1544-1551, May 1991 (Reviewed Extended Abstract).

C248. Bussani, F. and de Silva, C.W., "Dynamic Modeling of Automated Fish Processing," *Proceedings of the 2nd ASME Northwest International Region VIII Graduate Student Technical Conference,* Seattle, WA, pp. 50-56, April 1991, (Reviewed Abstract).

C249. Saliba, M., and de Silva, C.W., "Dynamics of Robotic Grasping," *Proceedings of the 2nd ASME Northwest International Region VIII Graduate Student Technical Conference*, Seattle, WA, pp. 55-56, April 1991, (Reviewed Abstract).

C250. Gamage, L.B. and de Silva, C.W., "Use of Image Processing for the Measurement of Orientation with Application to Automated Fish Processing," *Proceedings of the 16th Annual Conference of the IEEE Industrial Electronics Society*, Pacific Grove, CA, Vol. I, 90CH2841-5, pp. 482-487, November 1990 (Reviewed Extended Abstract).

C251. Riahi, N. and de Silva, C.W., "Fast Image Processing for the Gill Position Measurement in Fish," *Proceedings of the 16th Annual Conference of the IEEE Industrial Electronics Society*, Pacific Grove, CA, Vol. I, 90CH2841-5, pp. 476-481, November 1990 (Reviewed Extended Abstract).

C252. De Silva, C.W., "Fuzzy Adaptation and Control of a Class of Dynamic Systems," *Proceedings of the Fifth IEEE International Symposium on Intelligent Control*, Philadelphia, PA, IEEE Computer Society Press, CA, Vol. 1, pp. 304-309, September 1990 **(Invited Paper).**

C253. De Silva, C.W., "Use of the Compositional Rule of Inference in Control System Tuning," *Proceedings of the International Conference on Fuzzy Logic and Neural Networks*, Iizuka, Japan, Vol. 2, pp. 903-906, July 1990 **(Invited Paper).**

C254. De Silva, C.W., "Research Laboratory for Fish Processing Automation," *Proc. 3rd Int. Symposium on Robotics and Manufacturing*, Vancouver, B.C., Robotics and Manufacturing , ASME Press, Vol. 3, pp. 935-940, July 1990 (Full Paper Reviewed).

C255. De Silva, C.W., "Linearizing Control of Robots Using Off-Line Measurement of Torques and Speeds," *Proceedings of the 21st Modeling and Simulation Conference*, Pittsburgh, PA, *Modeling and Simulation,* ISA, Vol. 21, Part 5, pp. 2105-2109, May 1990 (Reviewed Extended Abstract).

C256. De Silva, C.W. and Shibly, H.A., "Recursive Newton-Euler Formulation of Least Squares Adaptive Control," *Proceedings of the 21st Modeling and Simulation Conference*, Pittsburgh, PA, *Modeling and Simulation*, ISA, Vol. 21, Part 5, pp. 1951-1955, May 1990 (Reviewed Extended Abstract).

C257. De Silva, C.W., "A Knowledge-Based Fuzzy Tuner for Servo Controllers," *ASME Winter Annual Meeting,* San Francisco, CA, Book DSC-Vol. 16, pp. 17-22, December 1989 (Full Paper Reviewed).

C258. De Silva, C.W., Singh, M., and Zaldonis, J., "Improvement of Response Spectrum Specifications in Dynamic Testing," *Proceedings of the 12th ASME Conference on Mechanical Vibration and Noise,* Montreal, Quebec, *Vibration Analysis - Techniques and Applications* (T.S. Sankar, et al., editors.), DE - Vol. 18-4, pp. 23-28, Sept. 1988 (Full Paper Reviewed).

C259. De Silva, C.W., Chung, C.L., and Lawrence, C., "Base Reaction Optimization of Robotic Manipulators for Space Applications," *Proceedings of the 19th International Symposium on Industrial Robots*, Sydney, Australia, pp. 829-852, November 1988 (Full Paper Reviewed).

C260. De Silva, C.W. and MacFarlane, A.G.J., "A Knowledge-Based Control Structure for Robotic Manipulators," *Proceedings of the IFAC Workshop on Artificial Intelligence in Real-Time Control,* Swansea, U.K., pp. 133-138, September 1988 (Full Paper Reviewed).

C261. De Silva, C.W., "Heuristic Feedback Control of Variable-Reluctance Stepping Motors," *Proceedings of the Eighteenth Annual Modeling and Simulation Conference,* Pittsburgh, PA, Instrument Society of America Publication, Vol. 18, pp. 1389-1393, April 1987 (Reviewed Extended Abstract).

C262. De Silva, C.W., "Advanced Techniques for Robotic Manipulator Control," *Proceedings of the 1986 International Congress on Technology and Technology Exchange*, International Technology Institute, Pittsburgh, PA, pp. 148-153, October 1986 (Full Paper Reviewed).

C263. De Silva, C.W., Price, T.E., and Kanade, T., "A Torque Sensor for Direct-Drive Manipulators," *Proceedings of the Japan - U.S.A. Symposium on Flexible Automation,* Osaka, Japan, July 1986 (Full Paper Reviewed).

C264. De Silva, C.W. and Singh, M., "A New Approach to Designing Vibration Isolators," *Proceedings of the International Conference on Vibration Problems in Engineering*, Xian, China, pp. 158-169, June 1986 (Full Paper Reviewed).

C265. De Silva, C.W. and Van Winssen, J.C., "A Recursive Algorithm for Least-Squares Trajectory Control of Robotic Manipulators," *Proceedings of the American Control Conference*, Seattle, WA, 86CH2336-6, Vol. 3, pp. 1722-1727, June 1986 (Full Paper Reviewed).

C266. De Silva, C.W., "Test Optimization for Seismic Qualification of Class 1E Equipment," *Proceedings of the 8th International Conference on Structural Mechanics in Reactor* Technology, Brussels, Belgium, Vol. K(b), pp. 81-86, August 1985 (Full Paper Reviewed).

C267. De Silva, C.W., "Technology Transfer to Industrializing Nations: Issues and Obstacles," *Proceedings of the 1984 International Congress on Technology and Technology Exchange,* Pittsburgh, PA, pp. 327-328, October 1984 (Full Paper Reviewed).

C268. De Silva, C.W., "A Motion Control Scheme for Robotic Manipulators," *Proceedings of the Third Canadian CAD/CAM and Robotics Conference,* Toronto, Canada, Chapter 13, pp. 13.1-7, June 1984 **(Best Paper Gold Award).**

C269. De Silva, C.W., "Techniques and Applications of Experimental Modal Analysis in Modeling and Control," *Proceedings of the 1984 American Control Conference*, San Diego, CA, 1984, Vol. 2, pp. 992-997, June 1984 **(Invited Paper).**

C270. De Silva, C.W., "A Transfer Function Approach to Passenger Discomfort Testing," *Proceedings of the 1981 Joint Automatic Control Conference*, Charlottesville, VA, Vol. 11, FP-4C, June 1981 (Full Paper Reviewed).

C271. De Silva, C.W., "Single Shaker Vibration Testing of Multi-Degree-of-Freedom Structures," *ASME/AIAA/ASCE/AHS 22nd Structures, Structural Dynamics, and Materials Conference*, Atlanta, GA, April 1981 (Reviewed Extended Abstract).

C272. De Silva, C.W., "Introducing Microcomputer Education to Mechanical Engineering Curriculum," *Proceedings of the 1980 Joint Automatic Control Conference,* San Francisco, CA, IEEE 80CH1, 580-0, II, FP4-C, August 1980 **(Invited Paper).**

C273. De Silva, C.W., Loceff, F., and Vashi, K.M., "An Optimal Procedure for Testing the Operability of Equipment Under Seismic Disturbances," *50th Shock and Vibration Symposium*, U.S. Department of the Navy, Colorado Springs, CO, October 1979 (Reviewed Extended Abstract).

C274. De Silva, C.W. and Wormley, D.N., "Single Beam Elevated Structures for the Two-Way Passage of Automated Guideway Transit Vehicle," *Proceedings of the Conference on Automated Guideway Transit Technology Development,* U.S. Department of Transportation, Report No. UMTA-MS-06-0048-78-1, pp. 540-566, February 1978 (Full Paper Reviewed).

C275. Wells, W.R. and De Silva, C.W., "Failure State Detection of Aircraft Engine Output Sensors," *Proceedings of the 1977 Joint Automatic Control Conference*, San Francisco, CA, IEEE Publication 77CH 1220-3CS, FA28, pp. 1493-1497, June 1977 (Full Paper Reviewed).

C276. De Silva, C.W. and Wells, W.R., "Sensor Failure Detection and Identification for Engine Control Systems," *AIAA Mini-Symposium on New Avenues for Progress in Aerospace Research Technology and Systems,* Wright Patterson Air Force Base, Dayton, Ohio, March 1976 (Reviewed Extended Abstract).