

MARCELO H. ANG JR.PRESENT POSITION

Associate Professor, Dept. of Mechanical Engineering
 Dy Director, Centre for Management of Science and Technology
 Dy Director, Centre for Intelligent Products & Mfg Systems
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HOME ADDRESS

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PERSONAL DATA

Born: March 3, 1959, in Manila, Philippines.
Country of Citizenship: Philippines.
Singapore Permanent Resident
Marital Status: Married to Caroline;
 sons Mark Adam (April 3 '84), Kyle Nathaniel (July 31 '98) and Ivan Jeremiah (Oct 11 '99)

EDUCATION

- 1988 - *Ph.D. in Electrical Engineering*, University of Rochester, Rochester, New York.
Dissertation: "Kinematic Control of Robotic Manipulators With Multiple Interchangeable Wrists," supervised by Professor Vassilios D. Tourassis.
- 1986 - *M.S. in Electrical Engineering*, University of Rochester, Rochester, New York.
Project: "General-Purpose Inverse Kinematic Transformations for Robotic Manipulators," supervised by Professor Vassilios D. Tourassis.
- 1985 - *M.S. in Mechanical Engineering*, University of Hawaii at Manoa, Honolulu, Hawaii.
Dissertation: "Application of Robotics to Sugarcane Propagation," supervised by Professor Joel S. Fox.
- 1981 - *B.S. in Mechanical Engineering (Cum Laude)*, De La Salle University, Manila, Philippines.
- 1981 - *B.S. in Industrial Management Engineering (Cum Laude)*, De La Salle University, Manila, Philippines.

CURRENT RESEARCH INTERESTS

- Mobile Robotic Manipulation in Human Environments
- Distributed Autonomous Robotics Systems
- Compliant motion and force control.
- Computer Control, Mechatronics and Automation.
- Computational Intelligence: Neural Networks, Genetic Algorithms, and Fuzzy Reasoning; and their applications to robotics and automation.
- Creativity and Innovation

PROFESSIONAL EXPERIENCE

- Dy Director, Centre for Management of Science and Technology, Faculty of Engineering, National University of Singapore, March 2004 – .
- Associate Professor, Department of Mechanical Engineering, National University of Singapore, August 1998 – . (Sr Lecturer, 1993-1998. Lecturer, 1989-1993).
- Dy Director, Centre for Intelligent Products and Manufacturing Systems, Department of Mechanical Engineering, National University of Singapore, April 1994 – .
- Senior Technology Advisor, Asian Technology Information Program, USA & Japan, July 1995 – .
- Program Manager, MSc (Mechatronics) Program, Faculty of Engineering, National University of Singapore, July 1996 – .
- Adjunct Associate Professor, Department of Mechanical Engineering, Adelaide University, Australia, November 2001 – October 2006. (Honorary Position)
- Associate Professor, Faculty of Industrial Design, Technical University of Eindhoven, Sept 2002 - Sept 2007.
- Program Manager, Mechatronics, Design Technology Institute, National University of Singapore and Technical University Eindhoven, Aug 2002 – .
- Honorary SIMTech Fellow, Singapore Institute of Manufacturing Technology, Oct 2003 - Nov 2005.
- Dy Director, Centre for Management of Science and Technology, Faculty of Engineering, Mar 2004 – .
- Asst Dean, Faculty of Engineering, National University of Singapore, Nov 2001 - Feb 2004.
- Adjunct Principal Research Fellow, Gintic Institute of Manufacturing Technology, Jan 1999 - Dec 2001.
- Assistant Professor, Electrical Engineering Department, University of Rochester, Rochester, New York, September 1988 – June 1989.
- Research Assistant, Electrical Engineering Department, University of Rochester, Rochester, New York, September 1986 – August 1988.
- Teaching Assistant, Electrical Engineering Department, University of Rochester, Rochester, New York, September 1985 – August 1986.
- Research Assistant, Artificial Intelligence Laboratory, University of Hawaii at Manoa, Honolulu, Hawaii, August 1983 – August 1985.
- Research Assistant, Energy and Industrialization Project of the Resource Systems Institute, East West Center, Honolulu, Hawaii, August 1983 – August 1985.
- Visiting Research Engineer, Laboratory for Manufacturing and Productivity, Massachusetts Institute of Technology, Cambridge, Massachusetts, May – September 1984.
- Senior Technical Training Officer, Assembly and Test Division, Intel Philippines, Inc., Manila, Philippines, June 1982 – August 1983.
- Instructor, Department of Mechanical Engineering, De La Salle University, Manila, Philippines, May 1981 – May 1982. (Lecturer Oct 1979 – May 1981)
- Instructor, Xavier School, Manila, Philippines, October 1975 – April 1976.

HONORARY SOCIETIES

- *Sigma Xi*, The Scientific Research Society, Rochester Chapter.

PATENTS, HONORS AND AWARDS

- US Patent 6,538,634: *Apparatus Image Guided Surgery*, Chui; Chee-Kong (Singapore, SG); Chen; Percy (Singapore, SG); Wang; Yaoping (Singapore, SG); Ang, Jr.; Marcelo H. (Singapore, SG); Cai; Yiyu (Singapore, SG); Mak; Koon-Hou (Singapore, SG), Application number 215407, Filed 18 Dec 1998, Granted 25 March 2003.
- Singapore patent application no. 200307722-9: Rotary Elastic Coupling, Actuator and Control Method, Chai Eddie and Marcelo H Ang Jr, 23 December 2003 (US Provisional Patent Application No 60/435,992 filed 23 Dec 2002).
- Licensed Technology: "Apparatus for the Simulation of Image Guided Surgery," Licensed to Institute for Applied Information Technology - German National Research Center for Information Technology (GMD), Nov 1999 - Present.
- Singapore Patent, 9904405-9: *Automated Building Facade Cleaning Apparatus*, Tay E H, M H Jr Ang and A N Poo, 29 September 1999.
- *Awards for Excellence 2000*, Most Outstanding Paper in the 1999 volume of the journal *Industrial Robot*.
- *Honorable Mention*, Use of IT in Teaching Award, National University of Singapore, 1998.
- US Patent No. 5,771,553: *Precision and quick affixing method for flexible automated assembly* (30 June 1998), with Sim Tian Soon and Lim Kah Bin. (Licensed by Koln Energy LLC - Subsidiary of Intellectual Ventures)
- *Outstanding Paper Award*, The Asia-Pacific Industrial Automation Conference (IA) '90, Singapore, May 23-26, 1990.
- Research Assistantship, University of Rochester, Rochester, New York, 1987 – 1988.
- Industrial Associates Program Fellowship, Production Automation Project, University of Rochester, Rochester, New York, 1986 – 1987.
- Teaching Assistantship, University of Rochester, Rochester, New York, 1985 – 1986.
- East West Center Honor Award, Honolulu, Hawaii, 1985.
- Renewable Energy Engineering Certificate, University of Hawaii at Manoa, Honolulu, Hawaii, 1985.
- East West Center Scholarship, University of Hawaii at Manoa, Honolulu, Hawaii, 1983 – 1985.
- National Computer Center Scholarship, Manila, Philippines, 1982.
- Third Place, National Engineering Board Registration Examinations, Manila, Philippines, 1981.
- Cum Laude, De La Salle University, Manila, Philippines, 1981.
- First Place, graduating class (Mechanical and Industrial Engineering Departments), De La Salle University, Manila, Philippines, 1981.
- Jose Rizal Honor Certificates (Dean's Honors List), De La Salle University, Manila, Philippines, 1976 – 1981.
- Faculty Resource Training Program Scholarship, De La Salle University, Manila, Philippines, 1979 – 1981.

PROFESSIONAL AFFILIATION

- Registered Professional Engineer and Member of the Philippine Society of Mechanical Engineers, 1982 – .
- Member, Institute of Electrical and Electronic Engineers (IEEE), Robotics and Automation Society 1988 – . (Singapore local chapter Management Committee member of RAS - 2004 – .)
- Member *Sigma Xi*, The Scientific Research Society, Rochester Chapter, 1988 – .
- Founding President, Robotic Games Society Singapore, 1995 – .

- Member, Robofesta International Committee, 2000 – .
- Member, Technical Committee for Mechatronics, International Federation for the Theory of Machines and Mechanisms, 2001- Present.
- Member, Technical Committee for History of Mechanisms and Machines, International Federation for the Theory of Machines and Mechanisms, 2001- Present.
- Member, The World Robot Olympiad, Jan 2004 – .
- Member, International Robot Olympiad, Jan 2004 – .

EDUCATIONAL ACTIVITIES

- Course Leadership and Organization
 - Co-Developed the new Minor in Management of Technology Program for FoE Undergraduates. Curriculum approved and 1st intake is on 1st Sem of AY04 2.
 - Co-Developed the new MSc in Management of Science and Technology Program, 1st intake was Aug 2005.
 - Co-developed the new MSc in Intellectual Property Management Program, 1st intake was Aug 2006
 - Designed and Organized the MSc (Mechtronics) degree program, which started in July 1996.
 - Co-designed and Co-organized the MTD (Mechatronics) Joint Degree program with Prof. Jeu Schouten of TuE. This is a joint degree program that started in July 2002.
- Development of New Modules introduced in National University of Singapore
 - Developed MT5003: Creativity and Innovation (a new module designed for MSc (MOT) students)
 - Co-developed TD6209: New Product Development and Realization, new 10 MC module, 1st implemented in 1st Sem, AY04.
 - TD5322: Mechatronic System Design, Jan 2003 (graduate module)
 - EG1604: Innovation Program, Jan 2002 (undergraduate module)
 - MCH5004.M2: Speed and Position Control Mini-Project for MSc (Mechatronics), July 2001 (postgraduate module)
 - ME1902: Creative Problem Solving in Engineering and Science, Jan 1998 (undergraduate module)
 - ME3101: Mechanical Design (Computer Interfacing and Electronics Components - 6 hrs), July 1997 (undergraduate module)
 - ME1191: Advanced Computing, Jan 1993 (undergraduate module)
 - EE5106/MCH5209/ME 5402 Advanced Robotics, July 1992 (postgraduate module)
 - ME5601: Introduction to Geometric Modeling, July 1991 (postgraduate module)
 - ME562: Computer Control, July 1990 (postgraduate module)
- Courses Taught
 - Mechatronic System Design, Graduate course. Dept of Mechanical Engineering and Design Technology Institute, National University of Singapore.
 - *Advanced Computing*. Undergraduate Course. Department of Mechanical and Production Engineering, National University of Singapore.
 - *Advanced Robotics*. M.Sc. Course. Department of Mechanical and Production Engineering, National University of Singapore.

- *Introduction to Geometric Modeling*. M.Sc. Course. Department of Mechanical and Production Engineering, National University of Singapore. New Course.
- *Computer Control*. M.Sc. Course. Department of Mechanical and Production Engineering, National University of Singapore.
- *Robotics*. Undergraduate Course, Departments of Electrical and Mechanical & Production Engineering, National University of Singapore.
- *Electrical Engineering and Instrumentation*. Undergraduate Course. Department of Mechanical and Production Engineering, National University of Singapore.
- *Computational Methods for Engineers*. Graduate Course. Department of Electrical Engineering, University of Rochester.
- *Introduction to Robotic Systems*. Graduate and Undergraduate Course. Department of Electrical Engineering. University of Rochester.
- *Systems Laboratory*. Undergraduate Course. Department of Electrical Engineering. University of Rochester.
- *Introduction to Computer Programming (Recitation)*. Freshman Course. Electrical Engineering Department. University of Rochester.
- *Basic Engineering Thermodynamics*. Undergraduate Course. Department of Mechanical Engineering. De La Salle University.
- *Mechanical Engineering Thermodynamics*. Undergraduate Course. Department of Mechanical Engineering. De La Salle University.
- *Engineering Mechanics (Statics)*. Undergraduate Course. Department of Engineering Sciences. De La Salle University.
- *Engineering Analysis*. Undergraduate Course. Department of Engineering Sciences. De La Salle University.
- *Differential Calculus*. Undergraduate Course. Department of Engineering Sciences. De La Salle University.
- *Integral Calculus*. Undergraduate Course. Department of Engineering Sciences. De La Salle University.

FUNDED PROJECTS

- Co-Principal Investigator, A*STAR SERC Grant 052 121 0082 - TSRP: Ultra Wide Band - Enabled Sentient Computing: "UWB-enabled Sentient Computing Architecture and Middleware with Coordinated QoS (USCAM-CQ), S\$1,113,180, 1 May 2006 to 31 May 2009.
- Partner Investigator, Australian Research Council Linkage Project ID: LP0668052: "Autonomous Service Robots in Multi-Agent Based System for Household and Industrial Environments.", S\$387,573.
- Principal Investigator, Project CRP U01-A-131A: Robust Mobile Manipulation in Unstructured and Human Environments, \$1,664,312 (53% from Gintic, and 47% from NUS), Oct 2001 – Sept 2004.
- Co-Principal Investigator, A*STAR SERC Grant - Embedded Hybrid Systems Programme Project No 0222 106 0049: "The All-Terrain Advanced Network of Ubiquitous Mobile Asynchronous Systems" ("Tarantulas"), 1 March 2003 - 28 February 2006, \$668,000 total funding from A*STAR.
- Associate Investigator, Australian Research Council Grant: Optimised and sensory-based robotic fibre placement of carbon fibre composites for fabrication of aerospace components. (Collaboration with Monash University. Australian Research Council SPRIT grant) A\$173,960, 2000-2002.
- Collaborator, NUS RP960684: Trainable Computer Vision Systems for Surveillance and Mobile Robot Control. NUS-ARF-MDR (\$229,365). Jan 97 - June 2003.
- Collaborator, NUS RP3992705. Factory Network Integration and Coordinated Planning for E-Manufacturing (\$111,000). Mar 2000 to Feb 2002.

- Singapore Robotic Games, annual funding since 1993 (\$50,000 - \$100,000 per year).
- Principal Investigator, Project GR6737: Development of a Prototype for Internet-Integrated Home Control System, \$21,000 from National Computer Board of Singapore, 1999 – 2000.
- Principal Investigator, Project U98-A-031: Control of Dynamic Behavior of Robotic Manipulators through Advanced Sensing Technology and Applications to Automation. \$2,650,000 from Gintic Institute of Manufacturing Technology, Singapore, 1998 – 2001.
- Principal Investigator in NSTB (National Science and Technology Board - Singapore) Sponsored Project (NSTB/17/3/31-3) on Research and Development of an Intelligent Pipe Measurement System. \$1,070,300 from NSTB and \$458,700 from industry. 1998 – 2001.
- Principal Investigator in NSTB (National Science and Technology Board - Singapore) Sponsored Project on Research and Development of a Ship-Welding Robot. \$1,651,200 from NSTB and \$60,000 from industry. 1994 – 1997.
- Principal Investigator in NUS (National University of Singapore) -funded research project RP890659 on Integration of Solid Modelling Systems into Robot Controller Architectures Towards Intelligent Robotic Systems. \$267,150. 1990-1995.
- Principal Investigator in NUS-funded (multi-disciplinary) research project RP910708 on Management of Manufacturing Technologies in Singapore: Trends in Technological Development - Identification, Infusion, and Education. \$33,000. 1992-1995.
- Chairman of HP Technology Quiz '94 Organizing Committee with members from Faculty of Science of NUS and NTU. Funding of \$10,000 from Hewlett-Packard Singapore Pte Ltd.

CONSULTANCIES

- Sr. Technology Advisor, Asian Technology Information Program (a collaboration between US National Institute of Standards and Technology and The University of New Mexico), July, 1995 - present.
- Expertise Advise on Robotic Vacuum Cleaner, Trental Marketing, Sept 1998 - Present.
- External Examiner, Diploma in Mechatronics, Ngee Ann Polytechnic, 1997 - 2001.
- Expert Consultant in Robotics, Dept of Electrical & Computer Engineering, Ngee Ann Polytechnic, Singapore, 1996 - 1997.
- Conner Peripherals Pte Ltd, 1995 - 1996. Robotics and Automation Projects.
- Brac Engineering (S) Pte Ltd, 1991 - present. Computer Controlled Asphalt Mixing Plant.
- Rhemax Precision Industries Pte Ltd, 1995 - present. Expert advise on robotics and automation work.
- Port of Singapore Authority, 1993 - present. Development of a Dynamic Weighing System for Containers.
- ST Kay and Company, 1991. Expert advise on robotics and automation work.

Membership in Editorial Boards of International Journals

- Member of Editorial Board, International Journal of Hybrid Intelligent Systems, July 2003 –.
- Associate Editor, International Journal of Humanoid Robotics (IJHR), April 2003 - March 2007.
- International Member of Editorial Board, Advanced Robotics (The International Journal of the Robotics Society of Japan), Feb 2003 to Present
- Co-Chief-Editor, INNOVATION Magazine, December 2002 to Present.
- Member, Editorial Advisory Board, INNOVATION Magazine, March 2002 to November 2002.
- Associate Editor, Control and Intelligent Systems, January 2002 - December 2003.

- Editor, ICASE Transaction on Control, Automation and Systems, April 2000 - Present.

Membership in International Scientific Advisory Boards

- Singapore Representative, Robofesta (International Robotic Games), 2000 - Present.
- Member of Technical Committee for Mechatronics, International Federation for the Theory of Machines and Mechanisms, 2001- Present.
- Member of Technical Committee for History of Mechanisms and Machines, International Federation for the Theory of Machines and Mechanisms, 2001- Present.
- Member, Steering Committee for International Symposia on Experimental Robotics, (ISER) 2002 - Present.

PROFESSIONAL SERVICE

- Technical Program Chair, IEEE International Conference on Systems, Man and Cybernetics, Singapore, 2008.
- Chair, 8th International Symposium on Experimental Robotics (ISER'04), Singapore, 25-28 June 2004.
- Member, International Program Committee, 8th Conference on Intelligent Autonomous Systems, Amsterdam, Netherlands, 10-13 March 2004.
- Member, International Program Committee, 2nd International Conference on Computational Intelligence, Robotics and Autonomous Systems (CIRAS), 15-18 Dec 2003, Singapore.
- Member, International Program Committee, IFAC Symposium on Mechatronic Systems, Sept 2004, Sydney, Australia.
- Member, Program Committee, 2003 IEEE/RSJ International Conference of Intelligent Robots and Systems (IROS 2003), October 27 - November 1, 2003, Las Vegas, NV, USA.
- Member, International Steering Committee, International Conference on Mechatronics Technology, 2-6 December 2003, Taipei, Taiwan.
- Judge, National Junior Robotics Competition, Singapore, 1999, 2000, 2001, 2002, and 2003. Advisor to National Senior Robotics League, Singapore, 2003.
- Member, International Program Committee, IASTED International Conference on Intelligent Systems and Control (ISC-2003), Salzburg, Austria, 25-27 June 2003.
- Member, Scientific Committee, International Symposium on Dynamics and Control, Hanoi, Vietnam, September 2003.
- Program Chair, International Conference on Humanoid, Nanotechnology, Information technology, Communication and control, Environment, and Management 2003 (HNICEM 2003), Manila, Philippines, 29-31 March 2003.
- Member, International Program Committee, 2nd IFAC-Conference on MECHATRONIC SYSTEMS, Dec 9-11, 2002, Berkeley, CA, USA.
- Member, Technical Program Committee, IEEE International Conference on Industrial Electronics and Control, Sevilla, Spain, 5-8 November 2002.
- Member, Program Committee, 9th International Conference on Neural Information Processing (ICONIP'02), Singapore, 18-22 November 2002.
- Co-Chair for Invited Sessions, IEEE International Symposium on Intelligent Control, Vancouver, Canada, October 2002.
- Member, International Steering Committee, 6th International Conference on Mechatronics Technology, Kitakyushu, Japan, Sept 29 - Oct 3, 2002.
- Member, International Program Committee, IEEE Conference on Mechatronics and Machine Vision in Practice, ChangMai, Thailand, 10-12 September 2002.

- Member, Program Committee, 2002 IEEE International Conference on Robotics and Automation (ICRA 2002), Washington, DC, USA, 11-15 May 2002.
- Member, Program Committee, Seventh Intelligent Autonomous Systems (IAS-7) Conference, Marina del Rey, California, USA, 25-27, March 2002.
- Member, International Program Committee for the International Conference on Computational Intelligence and Robotics, Singapore, 28-30 November 2001.
- Finance Chair, The IEEE 5th International Conference on Intelligent Transport Systems, Singapore, September 3-6, 2002.
- Publicity Co-Chair, Asian Control Conference (ASCC 2002), Singapore, September 25-27, 2002.
- Member, International Program Committee, 1st International Conference on Information Technology in Mechatronics (ITM'01), Istanbul Turkey, 1-3 October 2001.
- Member, Program Committee, 2001 IEEE/RSJ International Conference on Intelligent Robots and Systems, Maui, USA, 29 Oct - 3 November 2001.
- Member, International Program Committee, IEEE Conference on Mechatronics and Machine Vision in Practice, Hong Kong, 27-29 August 2001.
- Member. Technical Committee, Third World Manufacturing Congress (WMC'2001), Rochester, NY, USA, Sept 24-27, 2001.
- Member, Local Program Committee, International MEMS Workshop 2001, Singapore, 4-6 July 2001.
- Member, Program Committee (Asia and Oceania), 2001 IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM'01), Italy, July, 2001.
- Chair, Local Arrangement, 5th International Conference of Mechatronics Technology (ICMT'01), Singapore 6-8 June 2001.
- Chair, Technical Program, 4th Asian Conference on Robotics and Its Applications (ACRA'01), Singapore, 6-8 June 2001.
- Member, International Advisory Board, International Conference on Mechatronics (ICOM'01), Kuala Lumpur, Malaysia, 12-13 February 2001.
- Member, Technical Program Committee, Philippine Computing Society Congress (PCSC'2000), Manila, Philippines.
- Member, International Advisory Panel, Students Conference on R&D 2001, Kuala Lumpur, Malaysia, 20-21 Feb 2001.
- Member, Program Committee, Opto Mechatronics Systems (RB07), SPIE International Symposium on Intelligent Systems for Advanced Manufacturing, 5-8 November 2000, Boston, USA.
- General Co-Chair, FIRA Asia-Pacific Cup Singapore 2000, 23-25 May 2000.
- Member, International Scientific Committee, 2000 World Conference on Mathematics and Computers in Mechanical Engineering, Athens, Greece, 10-15 July, 2000.
- Member, Technical Program Committee, 2000 International Conference on Industrial Electronics and Control, 22-28 October 2000, Nagoya, Japan.
- Member, Program Committee, Intelligent Autonomous Systems, 7-9 July 2000, Venice Italy.
- Member, International Program Committee, 3rd Asian Control Conference, 4-7 July 2000.
- Member, Program Committee. 2000 IEEE Int. Conf. on Robotics & Automation (ICRA'2000), 22-28 April, 2000, San Francisco, USA.
- Member, International Program Committee, World Manufacturing Congress, 27-30 September 1999.
- Member, Review Committee, Third International Conference on Knowledge-Based Intelligent Information Engineering Systems, KES99

- Member, International Program Committee, IROS99 (IEEE/RSJ International Conference on Intelligent Robots and Systems), 17-21 Oct 1999, Korea.
- Member, International Program Committee, ISMT'99 (International Symposium on Manufacturing Technology)
- Singapore Representative, International Liaison Committee, ICMT98 (International Conference on Mechatronic Technology), November 30 - December 2, 1998, Hsinchu, Taiwan.
- Program Co-Chair, 2nd International Conference on Recent Advances in Mechatronics, ICRAM99, Istanbul, Turkey. May 24-26, 1999.
- Organising Committee Co-Chairman (Asia), *International Symposium on Intelligent Automation and Control*, 10-14 May 1998, Alaska, USA.
- Editor, *International Journal of Knowledge-Based Intelligent Engineering Systems*, 1997 – Present.
- Guest Editor, *Robotics and Autonomous Systems*, Special Issue on "Critical Issues in Robotics", September 1997.
- Member of Advisory Committee, *Computer Playtime 1997*, Singapore, December 4-7, 1997.
- Member of International Technical Committee, *World Manufacturing Congress 1997*, New Zealand, November 18-21, 1997. (Consists of *First International Symposium on Manufacturing Systems (ISMS)*, *First International Symposium on Manufacturing Technology (ISMT)*, *First International Symposium on Manufacturing Management (ISMM)*.)
- Member of Program Committee, *1997 IEEE International Symposium on Computational Intelligence in Robotics and Automation (CIRA'97)*, Hyatt Regency, Monterey, California, July 10-11, 1997.
- Member of International Program Committee, *World Conference on Systemics, Cybernetics and Informatics (SCI'97)*, Caracas, Venezuela, July 1997.
- Member of the Organizing Committee, 4th International Conference on Computational Physics, Singapore, 2-4 June 1997.
- Member of International Advisory Committee, *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS'96)*, Osaka, Japan, 4-8 November 1996.
- Member of International Program Committee, *International Conference on Information Systems Analysis and Synthesis (ISAS'96)*, Orlando, USA, 22-26 July, 1996.
- Chief Judge, National Skills Competition (Mechatronics - Youth Category), Qualifying Rounds: 12-14 March 1996, Final Rounds: 28 June - 1 July 1996.
- Member of Advisory Committee, *Computer Playtime 1996*, 12-15 December 1996.
- Member of Advisory Committee, 1996 International Conference on Neural Information Processing (ICONIP'96), Hong Kong, September 25-27, 1996
- Member of Program Committee, Factory Automation Track, The 22nd Annual International Conference of the IEEE Industrial Electronics Society - IECON'96, Taipei, Taiwan, August 5-9, 1996.
- Member of International Program Committee, *International Conference on Information Systems Analysis and Synthesis (ISAS'96)*, Orlando, USA, 22-26 July, 1996.
- Judge, Tan Kah Kee Young Inventors' Award (16 - 20 yrs old group), 7 February 1995.
- Member of International Advisory Committee, *1995 International Conference on Neural Information Processing (ICONIP'95)*, Beijing China, October 1995.
- Vice-President, Asia Pacific Neural Network Assembly (APNNA), (1993 - .).
- President, Robotic Games Society (Singapore), 1996 - .
- Honorary Secretary (1991-95), Vice Chairman (1996 - .), Faculty Club, National University of Singapore.

- Chairman (1993, 1994, 1996 -), Founding Chairman (1992), Vice Chairman (1995), Singapore Robot Games (SRG) Main Committee, (1993,1994, 1996-).
- Chairman, HP Technology Quiz 1994 Organising Committee.
- Resource Person, Innovation Programme (organised by Faculty of Engineering and Ministry of Education), (1993 -).
- Program Committee Member, “International Conference on Data and Knowledge Systems for Manufacturing and Engineering,” Hong Kong, 2-4 May 1994.
- Member of the International Advisory Committee, “International Conference on Neural Information Processing,” Seoul Korea, 17-20 October 1994.
- Member of the Organising and Technical Program Committees, International Conference on Automation, Robotics and Computer Vision (ICARCV’94), Nanyang Technological University, Singapore, 13-16 September 1994.
- Member of Organising Committee, Singapore International Conference on Intelligent Control and Instrumentation, 1995 (SICICI’95).
- Member of Organising and Technical Program Committees, 1995 International Symposium on Industrial Robots, 4-6 October 1995.
- Chairman, Organizing Committee for Singapore Robot Games (SRG) ’93, 16-28 November 1993, Singapore Science Centre, Singapore.
- Chairman, Neural Networks Special Interest Group (NNSIG) - Singapore, May 1990 - .
- Headed the Publicity Committee and Member of Technical Committee for the IEEE International Conference on Neural Network Applications to Signal Processing (NNASP’93), 17-20 August 1993, Singapore.
- Member of Organising Committee, International Conference on Organisational and Workforce Management Issues in Automation: Cross Cultural Perspectives, 25-27 August 1992, Singapore.
- Judge for the Robotics Section, Singapore Science Fair 1992, 15th Singapore Youth Science Fortnight, 26 May 1992, Singapore.
- Headed the Publicity Committee and Member of Technical Committee for the International Joint Conference on Neural Networks (IJCNN) ’91, November 18-21, 1991, Singapore.
- Member of the Organising Committee for the Singapore Robotics Festival (SRF) ’91, Singapore, November, 1991.
- Reviewer of several international journals and conferences

LANGUAGES

- English, Filipino, and Chinese (written and spoken).

INVITED SEMINARS

- ”Robotics Beyond the Factory - New Opportunities and Challenges”, Invited Public Lecture for 2002 Technology Month, Engineering Auditorium, National University of Singapore, 20 September 2002.
- “The Art of Engineering”, Invited Public Lecture, Smart Classroom, Faculty of Engineering, 17 August 2002.
- “Robotics and Mechatronics in Biomedical Applications”, Invited talk for Bioengineering Workshop, EA-06-03, Faculty of Engineering, National University of Singapore, 25 July 2002.
- “Opening Address as Guest of Honour for Opening of Robotics and Intelligent Machines Center, Institute of Technical Education (West), Singapore, 31 October 2001.

- “Recent Developments in Robotics - Towards Mobile Manipulation in Human and Unstructured Environments”, Invited Lecture, ITE-West, 31 October 2001.
- “Robotics in Human Work Environments - New Paradigms, Opportunities and Challenges”, Gintic-Georgia Tech Joint Forum on Manufacturing Technology, Grand Hyatt Hotel, Singapore, 27 September 2001.
- “Computational Intelligence and Robotics”, Invited Public Lecture, Gintic Institute of Manufacturing Technology, 10 May 2001.
- ”Innovation and Technological Progress,” Opening Address, Launch of Innovation Program 2000, Ministry of Education, 13 Jan 2001.
- ”Telepresence Robotic Manipulation with Haptic and Stereo Feedback,” Invited Seminar, Singaren, NUS School of Computing, 4 January 2001.
- “The Art of Engineering: Creativity and Innovation”, Invited Public Address to selected international teachers and students, Science and Technology Camp, Engineering Auditorium, National University of Singapore, 6 Dec 2000.
- “ Robotics and Automation Opportunities in the Marine Industry,” The Marine Group Local Industry Upgrading Program (LIUP) Event on Towards a Knowledge-Driven Marine Industry, 2 May 2000, World Trade Centre, Singapore.
- “Real-Time Control Using Personal Computers,” Innovators’ Club Talk, National University of Singapore, 13 March 2000.
- “Robotic Applications in Pipe Measurements for Repair Shipyards,” First SiCToMM (Singapore Committee for the Technologies of Machines and Mechanisms) Seminar, NTU, 13 March 2000.
- “E-Factory, Singapore Confederation of Industries and LCEL (NUS) Symposium on Competitiveness in Manufacturing Industries, 16 February 2000.
- “IP Strategy: Increasing Chances by Systematic & Favorable Interactions”, Innovation Program Workshop on Mentoring Process I, Ministry of Education, 22 January 2000.
- ”Innovation and Technological Progress,” Opening Address, Launch of Innovation Program 2000, Ministry of Education, 15 Jan 2000.
- “Art of Engineering, Science and Technology Camp 1999, National University of Singapore, 7 December 1999.
- “Robotics in Shipyards - Opportunities and Challenges”, Techmonth’99 Seminar on Achievements of Science and Technology in the Marine Industry, Ngee Ann Polytechnic, 11 September 1999.
- “Robotics Research Issues - Some Recent Developments,” Invited Seminar by Dept of ME, De La Salle University, Philippines, 21 June 1999.
- “Real-Time Control Using Personal Computers,” Innovators’ Club Talk, National University of Singapore, 10 March 1999.
- “Science & Technology - Innovations, Creations and Inventions, Innovation Program Opening Ceremony Address, Temasek Polytechnic, 23 January 1999.
- “Mechatronics in Singapore and Applications in Data Storage (with Tony Huang), 1998 Trans-Pacific Workshop on Mechatronic Technology, ITRI, Hsinchu, Taiwan, 2 December 1998.
- “Control and Automation Using Personal Computers,” IES and Innovators Club (Students) Talk, National University of Singapore, 5 March 1998.
- “ Mechatronics Research and Development,” Faculty of Engineering, National University of Singapore, 18 Feb 1998.
- “Robotics Research Directions & Applications to Marine Industry - A Personal Perspective. Singapore-Norway Technology Seminar, organized by NSTB. 20 October 1997.

- “Management of Manufacturing Automation Technology,” in *Symposium on Management of Technology in Manufacturing Industry in Singapore*, 10 September 1997, Computer Centre Auditorium, National University of Singapore.
- “A Paradigm Shift in Robotics - Current Trends,” Singapore Microcomputer Society Talks, 11 April 1997, Temasek Room, Novell, Singapore.
- ”Neural Network Applications in Robot Motion Control,” Dept of Information Systems and Computer Science, National University of Singapore, 27 March 1997.
- ”Neural Networks in Robotics,” Colloquium on Neural Science Research, Faculty of Science, National University of Singapore, 4 March 1997.
- “Project Work to Enhance Learning,” Centre for Development in Teaching and Learning, 22 February 1997, National University of Singapore, Singapore.
- “A New Paradigm for Robotic Applications – A Welding Example,” Technology Month 1996 Seminar, 27 September 1996, National University of Singapore.
- “Passive Compliance in Robotics – A Key to Successful Robotic Automation,” Electronic and Computer Engineering Department, Ngee Ann Polytechnic, Singapore 21 September 1996.
- ”Robotics and Intelligence,” National University of Singapore, 13 September 1996.
- “A User-Interface for Robotic Welding in Shipyards,” in *New Technologies in the Marine Industry*, 5 September 1996, Singapore Productivity and Standards Board, Singapore.
- “A Simple Yet Effective Compliance Control Algorithm for Industrial Robots,” Electronic and Computer Engineering Department, Ngee Ann Polytechnic, Singapore 21 August 1996.
- “Robotics & Applications – A Paradigm Shift,” Electronic and Computer Engineering Department, Ngee Ann Polytechnic, Singapore 19 July 1996.
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- “Challenges in Robotics,” Ngee Ann Polytechnic, 8 November 1995.
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- “Lecture-cum-Practical: A Robotic Experience”, for Secondary School Students from Raffles Institution, 2 December 1994.
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- “Neural Network Applications in Robotics.” *NUS Inter-Faculty Seminar on Mathematical Applications in Engineering*, Department of Mathematics, October 29, 1990. (with Dr. Teo Chee Leong)
- “Robotics: The Current State and Where To?” *Singapore Institution of Engineers (IES) Technical Talk*, IES Headquarters, Singapore, October 26, 1990.
- “Neural Network Based Robot Control.” *IEEE Computer Chapter Technical Talk*, Faculty Club, National University of Singapore, Singapore, October 9, 1990. (Invited.)

- “The Interchangeable Wrist Concept – A Step Towards Modular Robotics.” Department of Electrical Engineering, National University of Singapore, November 15, 1989. (Invited Seminar.)
- “Kinematic Control of Robotic Manipulators with Multiple Interchangeable Wrists.” Department of Ocean Engineering, Massachusetts Institute of Technology, Cambridge, Massachusetts, January 17, 1989. (Invited Seminar.)
- “Kinematic Control of Robotic Manipulators with Multiple Interchangeable Wrists.” School of Engineering Science, Simon Fraser University, Vancouver, British Columbia, December 13, 1988. (Invited Seminar.)
- “Fast Kinematic Algorithms for Robot Control.” *Industrial Associates Meeting, Production Automation Project*. Rochester, New York, October 15, 1986.

WORKSHOPS and SHORT COURSES

- “Sensors and Actuators”, 6-day short course for staff of Delphi, Singapore, Sept 2002.
- “Advanced Robotics, 5-day short course for staff of AMA CU, Philippines, July 7-15, 2002.
- “Introduction to Robotics.” 30-hour short course for staff of Ngee Ann Polytechnic. May 28 to June 18, 1994.
- “Introduction to Motion Control,” in *Workshop on Advanced Topics in Motion Control*, 29 May 1992, Singapore.
- “Creating a Corporate Automation Culture,” with G.B. Andeen, S.H. Park, and J. Ling. The Regent Hotel, Singapore, May 31, 1990. (Sponsors: the Economic Development Board, Automation Applications Center, Applied Research Corporation, and the National University of Singapore.)
 - Repeat Offering with G.B. Andeen, S.H. Park, and J. Ling. Goodwood Park Hotel, Singapore, August 24, 1990.
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- “Robotics: Basics and Fundamentals,” with V.D. Tourassis. *The Third International Conference on CAD/CAM Robotics and Factories of the Future*. Detroit, Michigan, August 15, 1988.

PUBLICATIONS

- Complete list of publications can be obtained from <http://guppy.mpe.nus.edu.sg/~mpeangh/publicat.pdf>
- Selected publications can be downloaded from <http://guppy.mpe.nus.edu.sg/~mpeangh/publications>

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