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Ma, Yongsheng, Dr.

Associate Professor (Tenured)

Department of Mechanical Engineering, Faculty of Engineering, University of Alberta

Education

1981-1986: BEng from Dept. of Precision Instruments and Machinery, Tsinghua University, China

1986-1987: MSc candidate in Dept. of Precision Instruments and Machinery, Tsinghua University, China

1987-1988: Training Dept. for overseas study, Beijing Foreign Studies University

1988-1990: Obtained MSc from UMIST, Manchester, UK (now the University of Manchester)

1990-1993: Obtained PhD from UMIST, Manchester, UK (now the University of Manchester)

Teaching duties

Winter 2008 - MEC E 460 - Engineering Design

Fall 2008 - MEC E 364 – Manufacturing Processes

Winter 2009 - MEC E 460 - Engineering Design

- ENG G 401 - Fundamentals of Engineering Management

- MEC E 541 - Modeling and Simulation of Engineering Systems

Research interests

CAD/CAM/CAPP; Collaborative Engineering, Product Lifecycle Management (PLM); Intelligent Design and Manufacturing, Feature-based Engineering; Plastic Injection Mould Design

Editorial Board Member: International Journal of Electronic Business Management (IJEEM)

Invited guest editors for the issues of the following Journals:

- Special Issue on *Product Lifecycle Management*, **International Journal of Advanced Manufacturing Systems (published in 2007)**
- Special Issue on *Product Lifecycle Modeling, Analysis and Management*, **Computers in Industry (published in July-September, 2007)**
- Special Issue on *Knowledge-Driven Enterprise Engineering Integration And Management*, **International Journal of Computer Applications in Technology (IJCAT), to be published in April, 2008.**
- Special Issue on 2008 International conference on Product Development and Reliability, August 4-6, Chengdu, China, **Concurrent Engineering: Research and Application (CERA), to be published in 2008.**

Research Projects:

- Start up project in “Intelligent Design” supported by the faculty of engineering and department of Mechanical Engineering.

Professional Society Service:

1993 to present, senior member of **Society of Manufacturing Engineers (SME)**

Services for International Community:

1. International programme committee, session chair, keynote speaker, on 2008 International conference on Product Development and Reliability, August 4-6, Chengdu, China.
2. External Examiner for the Engineering Informatics diploma course from 2007-2009. Multidiscipline Engineering Division of Ngee Ann Polytechnic, Singapore.
3. External Assessor for The Research Grants Council (RGC) of Hong Kong, 2007
4. **International Scientific Committee member, 3rd International Conference on Humanoid, Nanotechnology, Information Technology, Communication and Control, Environment, and Management 2007 (HNICEM 2007), 15-18 March 2007, Century Park Hotel, Manila, Philippines.**
5. **Programme Committee member, The 11th International Conference on Computer Supported Cooperative Work in Design, April 26-28, 2007, Melbourne, Australia.**
6. **Scientific Committee member, International Conference on Agile Manufacturing (ICAM 2007), Durham University, UK, 9-11 July, 2007.**

7. **Special Session Chair**, Product Lifecycle Management, 4th International IEEE Conference on Industrial Informatics, INDIN'06, Singapore, 16-18 August 2006.
8. **Programme Committee member**, 2005 IEEE International Conference on Service Operations and Logistics, and Informatics, August 10-12, 2005 – Friendship Hotel, Beijing, China., Co-Sponsored by: IEEE ITSS, Natural Science Foundation of China, Tsinghua University, IIE China, CAST-USA, IEEE Beijing.
9. **Programme Committee member**, Third International Conference on Information Technology and Applications (ICITA'05), Sydney from the 4th to the 7th of July 2005.
10. **Invited speaker**, Product and process management, Symposium on Product Lifecycle Management, 5 October 2005, Wednesday, 9.00am –12.30pm, Auditorium, Level 3, SIMTech Tower Block, Singapore Institute of Manufacturing Technology, 71 Nanyang Drive, Singapore.
11. **Session chair** of Collaborative Product Lifecycle Modeling, Integration, and Management, international conference on concurrent engineering (CE2005), 25-27 July, 2005, Fort Worth, Dallas, Texas, US.
12. **Session chair** of the 2005 International CAD Conference and Exhibition held in Montien Riverside hotel, Bangkok, 20-24 June, 2005, Thailand.
13. **International Scientific Committee member**, 2nd International Conference on Humanoid, Nanotechnology, Information Technology, Communication and Control, Environment, and Management 2005 (HNICEM 2005), 17-20 March 2005, *HYATT Regency Hotel, Manila, Philippines.*
14. **Keynote speaker**, “Commercialization of products and licensing of technologies from academic researches”, the 3rd International conference on Engineering Education and 2004 the Philippine Association for Technical Education (PATE) National Convention, 26-27 July, 2004, *Westin Phillippine Plaza Hotel, Manila, Philippines.*
15. **Keynote speaker**, “Unified feature-based product lifecycle management”, the International symposium on Precision Engineering, MTA 2005-MetalAsia, organized by A*Star SIMTech and Singapore Exhibition Services Pte Ltd, 11-12 May, 2005, Singapore Expo.
16. **International Advisory Committee member**, 2nd INTERNATIONAL CONFERENCE ON INFORMATION TECHNOLOGY & APPLICATIONS (ICITA 2004), jointly organized by Heilongjiang University, Shanghai Jiao Tong University, China; IEEE NSW Section, Australia; Saora Inc., Japan, 9-11 January 2004, HARBIN, CHINA.
17. **Visiting Professor (from June 2004 to May 2006)**, Heilongjiang University, HARBIN, CHINA.
18. **International Advisory Committee member**, 1st INTERNATIONAL CONFERENCE ON INFORMATION TECHNOLOGY & APPLICATIONS (ICITA 2002), jointly organized by IEEE, NSW Section, Australia; Charles Sturt University, Australia; Department of State and Regional Development, Australia; Saora Inc., Japan; and Bathurst Visitor Information Centre, Australia, 25-28 November 2002, Bathurst, Australia.

Publication list

Book Chapter, Special Issues

1. Y.-S. Ma, G. Chen, and G. Thimm, “Fine Grain Feature Associations in Collaborative Design and Manufacturing - A Unified Approach”, in *Collaborative Design and Planning for Digital Manufacturing*, (edited by L.H. Wang and Andrew Nee), scheduled to be published by Springer-Verlag, London, 2008/2009.
2. Y.-S. Ma, S. -H. Tang, and G. Chen, “A Fine-grain and Feature-oriented Product Database for Collaborative Engineering”, *Collaborative Product Design & Manufacturing Methodologies and Applications* (edited by WD Li, SK Ong, AYC Nee and CA McMahon), published by Springer, England, 2007, pp.109-136, ISBN 978-1-84628-801-2.
3. Y.-S. Ma and J. Fuh (Eds), “Product lifecycle modelling, analysis and management”, Special Issue of *Computers in Industrial*, Volume 59, Issues 2-3, Pages 107-320 (March 2008), ELSEVIER. <http://www.sciencedirect.com/science/journal/01663615>.
4. S. N. Dwivedi and Y.-S. Ma (Eds), *International Journal of Advanced Manufacturing Systems*, Vol. 10(1), 2007, pp. 1-117, International Society of Agile Manufacturing.

International Journal Papers

- [1] Y. -S. Ma, S. Hinduja and G. Barrow, "Actual Radial Width of Cut and Cutting Mode in 2.5 D Spiral-out Pocketing", *J. of the Institution of Engineers*, Singapore, Vol. 34, No. 4, pp.60-68, June, 1994.
- [2] S. Hinduja, Y. -S. Ma and G. Barrow, "Determination of the Radial Width of Cut and Cutting Modes in Milling", *Int. J. Mach. Tools. Manufacturing*. Vol. 35, No.5, pp.689-699, 1995.
- [3] Y. -M. Deng, G. A. Britton, Y. C. Lam, S. B. Tor, Y. -S. Ma, "A Feature-Based CAD-CAE Integration Model for Injection Moulded Product Design", *International Journal of Production Research*, Vol. 40 n15, pp. 3737-3750, Taylor & Francis, 2002.
- [4] Y. -S. Ma, S. B. Tor, and G. A. Britton, "The Development of a Standard Component Library for Plastic Injection Mould Design Using an Object Oriented Approach", *International Journal of Advanced Manufacturing Technology*, vol. 22, no. 9-10, 2003, pp. 611-618.
- [5] Y. -S. Ma and T. Tong, "Associative Feature Modeling for Concurrent Engineering Integration", *Computers in Industry*, vol. 51, no. 1, 2003, pp. 51 - 71.
- [6] Y. -S. Ma, and T. Tong, "An Object Oriented Design Tool for Associative Cooling Channels in Plastic Injection Mold", the *International Journal of Advanced Manufacturing Technology*, vol. 23, 2004, pp. 79 - 86.
- [7] Y.-S. Ma, Graeme A Britton, S. B. Tor, L.-Y. Jin, and G. Chen and S.-H. Tang, Design of a feature-object-based mechanical assembly library, *Computer-Aided Design & Applications*, Vol. 1(1-4), 2004, pp. 397-403.
- [8] Tang S. -H., Ma Y. -S. and Chen G., A Feature-oriented Database Framework for Web-based CAX Applications, *Computer-Aided Design & Applications*, Vol. 1(1-4), 2004, pp. 117-125.
- [9] G. Chen, Y. -S. Ma, G. Thimm and S. -H. Tang, Unified feature modeling scheme for the integration of CAD and Cax, *Computer-Aided Design & Applications*, Vol. 1(1-4), 2004, pp. 595-601.
- [10] G. Chen, Y. -S. Ma, G. Thimm and S. -H. Tang, Knowledge-based reasoning in a unified feature modeling scheme, *Computer-Aided Design & Applications*, Vol. 2(1-4), 2005, pp. 173-182.
- [11] J. Y. Chen, Y. -S. Ma, C. L. Wang, and C. K. Au, Collaborative design environment with multiple CAD systems, *Computer-Aided Design & Applications*, Vol. 2(1-4), 2005, pp. 367-376.
- [12] Y. -S. Ma, A case study on non-parametric design method in ODM collaborative product development, *International Journal of Product Development*, Vol.2 (4), 2005, pp. 411-434.
- [13] G. Thimm, S.G. Lee, and Y.-S. Ma, "Towards unified modelling of product life-cycles", *Computers in Industry*, 57 (2006) 331–341.
- [14] Y. -S. Ma, G. A. Britton, S. B. Tor and L. -Y. Jin, Associative assembly design features: concept, implementation and application, *International Journal of Advanced Manufacturing Technology*, Volume 32, Numbers 5-6 / March, 2007, pp. 434-444.
- [15] M.Q. Wang and Y. -S. Ma, A systematic method for mapping customer requirements to quality characteristics in product lifecycle, *International Journal of Simulation and Process Modeling*, Vol. 3(4), pp. 229-237.
- [16] G. Chen, Y.-S. Ma, Georg Thimm, S.-H. Tang, "Associations in a Unified Feature Modeling Scheme", *ASME Transactions Journal of Computing & Information Science in Engineering*, vol. 6, no. 2, 2006, pp.114-126.
- [17] G. Chen, Y.-S. Ma, G. Thimm and S.-H. Tang, "Using Cellular Topology in a Unified Feature Modeling Scheme", *Computer-Aided Design and Applications*, Vol. 3, Nos. 1-4, 2006, pp. 89-98, <http://www.cadanda.com>
- [18] Y.-S. Ma, "Web Service-Oriented Standard Product Library", *International Journal of Advanced Manufacturing Systems*, Vol. 9, No. 2, 2006, pp. 65-72.
- [19] Y.-L. Liu, Y.-S. Ma, Stephen S.G. Lee and G. Thimm, "Product Module Partition and Optimization for Customization", *International Journal of Advanced Manufacturing Systems*, Vol. 10(1), 2007, pp. 9-14.
- [20] S. H. Tang, Y. -S. Ma, G. Chen and J. Y. Chen, "Design of Feature-oriented Database for Collaborative Product Development", *International Journal of Advanced Manufacturing Systems*, Vol. 10(1), 2007, pp.15-20.
- [21] G. Thimm, R. Wang, and Y. -S. Ma, "Tolerance Transfer in Sheet Metal Forming", *International Journal of Production Research*, Vol. 45, No. 14, pp. 3289-3309.

- [22] Yiyang Zhang, Jianxin (Roger) Jiao, Yongsheng Ma, "Market Segmentation for Product Family Positioning Based on Fuzzy Clustering", *Journal of Engineering Design*, Vol. 18(3), 2007, pp. 227-241.
- [23] G. Chen, Y.S. Ma, and G. Thimm, "Change propagation algorithm in a unified feature modeling scheme", *Computers in Industry*, 59(2-3), 2008, pp. 110-118, <http://dx.doi.org/10.1016/j.compind.2007.06.006>.
- [24] S.G. Lee, Y.-S. Ma, G. Thimm and J. Verstraeten, "Product lifecycle Management in Aviation Maintenance, Repair and Overhaul", *Computers in Industry*, 59(2-3), 2008, pp.296-303.
- [25] X. G. Ming, J. Q. Yan, Y. R. Ni, S. N. Li, W. F. Lu and Y. S. Ma, "Collaborative process planning and manufacturing in product lifecycle management", *Computers in Industry*, 59(2-3), 2008, pp. 154-166, <http://dx.doi.org/10.1016/j.compind.2007.06.012>.
- [26] Y.-S. Ma, Roger J.X. Jiao, Y.-M. Deng, "Web Service Oriented Electronic Catalogs for Online Product Customization", accepted by *Concurrent Engineering Research and Application*, to appear.
- [27] Georg Thimm, Rui Wang, and Yongsheng Ma, "Monte-Carlo Simulations of Geometric Errors: Confidence and Computational Effort", submitted to *International Journal of Advanced Manufacturing Technology*.
- [28] Georg Thimm, Rui Wang, and Yongsheng Ma, "Geometric Tolerance Transfer and Design Compliance for Sheet Metal Processing", submitted to *International Journal of Advanced Manufacturing Technology*.
- [29] Y. -S. Ma, T.S. Rajeshbabu and Y.-M. Deng, "Web Service Oriented Standard Product Library", *International Journal of Electronic Business Management (IJEEM)*, Vol.5(2), 2007, pp.105-114, ISSN 1728-2047.
- [30] R. Wang, G. Thimm and Y.-S. Ma, "Tolerance Transfer for Sheet Metal Forming Based on Transformation in Space", submitted to *International Journal of Advanced Manufacturing Technology*.
- [31] Y.-S. Ma and J. Fuh, "Editorial: Product lifecycle modelling, analysis and management", *Computers in Industrial*, Vol. 59 (2-3), 2008, pp. 107 - 109, [doi:10.1016/j.compind.2007.06.005](http://dx.doi.org/10.1016/j.compind.2007.06.005)
- [32] Y.-S. Ma, G. Chen and G. Thimm, "Paradigm Shift: Unified and Associative Feature-based Concurrent and Collaborative Engineering", Accepted by *Journal of Intelligent Manufacturing*, special issue on Advanced Technologies for Collaborative Manufacturing.
- [33] S. -H. Tang, Y. -S. Ma and J. -Y. Chen, "Web-based Collaborative Engineering by Operations with a Fine-grain Database", submitted to *Computers in Industry*.
- [34] Y.-S. Ma and C.H. Bong, Fine Grain Associative Feature Reasoning in Collaborative Engineering, submitted to *IJCAT*.
- [35] C.K. Au and Y.-S. Ma, Garment pattern definition, development and application with associative feature approach, submitted to *Computers in Industry*.

Conference Papers

1. Y. -S. Ma, "An Analysis Method for Cutting Force Distribution along Rake Face and Flank Face", Proceedings of the 8th UT-UMIST-RIT Research Seminar, March 1989.
2. G. Barrow, A. K. Ghani and Y. -S. Ma, "The Role of Workpiece Material in Brittle Tool Failure during Interrupted Cutting", Proceedings on the 6th International Manufacturing Conference in China, Hong Kong, March 1993.
3. Y. -S. Ma, "Tool Paths for Face Milling Considering Cutter Tooth Entry/Exit Conditions", Published in Proceedings of the 3rd International Conference Computer Integrated Manufacturing, 11-14 July, 1995, Singapore (ICCIM 95) (J. Winsor, A.I. Sivakumar, R. Gay, Eds.), Vol.1, pp.427-434, ISBN 981-02-2376-5, World Scientific.
4. Y. -S. Ma and Gao Huixing, "Development of An Intelligent Grating CAD system --- GRTCAD", Published in Proceedings of the 4th International Conference Computer Integrated Manufacturing, 21-24 October, 1997, Singapore (ICCIM 97) (A. Sen, A.I. Sivakumar, R. Gay, Eds.), Vol.2, pp. 855-864, ISBN 981-3083-68-9, Springer.
5. G. A. Britton, Y. -S. Ma and S. B. Tor, "Object Technology Development and Unigraphics", Proceedings of Unigraphics User Group 1999 Spring Conference: Managing design evolution, March 14-18, 1999, Newport Beach, California, USA.

6. Y. -S. Ma, Y. -Q. Lu, and Z. Li, "Tooling Design Knowledge Encapsulation and Application in MoldWizard". Proceedings of the 2001 Knowledge Driven Automation (KDA) JAD Conference, Feb 26-28, 2001, Cypress, CA, USA.
7. Y. -M. Deng, G. A. Britton, Y. C. Lam, S. B. Tor and Y. -S. Ma (2001). A Feature-Based CAD-CAE Integration Model for Injection Molded Product Design. Proceedings of the 16th International Conference on Production Research, Prague, Czech Republic. 29 Jul - 3 Aug, 2001.
8. Y. -S. Ma, S. B. Tor, G. A. Britton and T. Wijaya, "Design, Definition, and Implementation of a Component Library for Mechanical Design", Proceedings of the first International Conference on Information Technology and Applications (ICITA 2002), 25-29 November 2002, Bathurst, Australia.
9. Y. -S. Ma, Y. Q. Lu, and Z. Li, "Associative Design and Knowledge Automation in Mould Wizard". Proceedings of the first International Conference on Information Technology and Applications (ICITA 2002), 25-29 November, 2002, Bathurst, Australia.
10. Y. -S. Ma, G. A. Britton, S. B. Tor, E. Gunawan and C. H. Lee, "Standard Component Library Design and Implementation for Plastic Injection Mold Design with a CAD Tool", Proceedings of the Fourth International Conference on Control and Automation (ICCA'03), 10-12 June, 2003, Montreal, Quebec, Canada.
11. Y. -S. Ma and Eric X. W. Jiang, "A Novel Network Security Solution", accepted by The 2nd International Conference on Information Technology and Applications (ICITA'04), 8-11 January 2004, Harbin, P. R. China.
12. Y.-S. Ma*, Graeme A Britton, S. B. Tor, L.-Y. Jin, and G. Chen and S.-H. Tang, Design of an feature-object-based mechanical assembly library, presented on the International CAD'04 conference, Pattaya, Thailand, May 24-28, 2004.
13. Tang S. -H., Ma Y. -S.* and Chen G., A Feature-oriented Database Framework for Web-based CAX Applications, presented on the International CAD'04 conference, Pattaya, Thailand, May 24-28, 2004.
14. G. Chen, Y. -S. Ma*, G. Thimm and S. -H. Tang, Unified feature modeling scheme for the integration of CAD and Cax, presented on the International CAD'04 conference, Pattaya, Thailand, May 24-28, 2004.
15. G. Chen, Y. -S. Ma*, G. Thimm and S.-H. Tang, Unified feature based integration of design and process planning, Proceedings of the International MATADOR conference, Manchester, United Kingdom, July 7-9, 2004, Srichand Hinduja (Ed.), Springer, pp. 63-68.
16. Tang S. -H., Ma Y. -S.* and Chen G., A Web-based Collaborative Feature Modelling System Framework, Proceedings of the International MATADOR conference, Manchester, United Kingdom, July 7-9, 2004, Srichand Hinduja (Ed.), Springer, pp. 31-36.
17. Y. -S. Ma, G. A. Britton, S. B. Tor, "Commercialization of product, design, software etc developed from academic researches", Invited plenary speech on the 3rd International Conference on Engineering Education (ICEE'04), to be held on 26-27 July, 2004, Manila, Philippines.
18. G. Chen, Y. -S. Ma*, G. Thimm and S. -H. Tang, Knowledge-based reasoning in a unified feature modeling scheme, to be presented on the International CAD'05 conference, Bangkok, Thailand, June 20-24, 2005.
19. J. Y. Chen, Y. -S. Ma, C. L. Wang, and C. K. Au, Collaborative design environment with multiple CAD systems, to be presented on the International CAD'05 conference, Bangkok, Thailand, June 20-24, 2005.
20. S. -H. Tang, Y. -S. Ma and G. Chen, Integration of a solid modeler with a feature-oriented database, to be presented on the International CAD'05 conference, Bangkok, Thailand, June 20-24, 2005.
21. X. G. Ming, Y.-S. Ma, W. He, W. F. Lu, Q. Z. Yang, L.-P. Khoo, Collaborative Product Lifecycle Management in Virtual Enterprise Ecosystem – Business Challenge and Research Strategy, proceedings of The 12th ISPE International Conference on Concurrent Engineering (CE2005): Research and Applications -Next Generation Concurrent Engineering: Smart and Concurrent Integration of Product Data, Services, and Control Strategies, M. Sobolewski and P. Ghodous (Eds.), ISPE, Dallas, USA 25 - 29 July 2005, pp.337-342.
22. G. Chen, Y.-S. Ma, X.G. Ming, G. Thimm, Stephen S.G. Lee, L.-P. Khoo, S.-H. Tang, W. F. Lu, A unified feature modeling scheme for multi-applications in PLM, proceedings of The 12th ISPE International Conference on Concurrent Engineering (CE2005): Research and Applications -Next Generation Concurrent Engineering: Smart and Concurrent Integration of Product Data, Services, and Control Strategies, M. Sobolewski and P. Ghodous (Eds.), ISPE, Dallas, USA 25 - 29 July 2005, pp. 343-348.

23. Y. -S. Ma, E. Foong, and X. G. Ming, Collaborative Product Lifecycle Management (PLM) for Continuous Improvement, Keynote speech presented on MTA2005 Symposium on Precision Engineering: Sustainable Manufacturing, Reducing Cost of Operations, Improving Efficiency, Singapore Expo, 11-12 May 2005, Singapore.
24. P. -L. Liu, Y.-S. Ma, B. Song and S. C. Koh, Quick NC Simulation & Verification for High Speed Machining, to be presented on and published in the proceedings of, The 2005 MORI SEIKI 2nd international conference on die & mould technology, Oct. 16-19, 2005, Beijing, China.
25. G. Chen, Y.-S. Ma, G. Thimm and S.-H. Tang, "Using Cellular Topology in a Unified Feature Modeling Scheme", to be presented by international CAD'06 conference, June 19-23, Phuket Island, Thailand, 2006.
26. R. Wang, G. Thimm and Y.-S. Ma, "Statistical Tolerance Transfer for Sheet Metal Part Forming", accepted to 5th International Conference on Mechanical and Materials in Design, Porto – Portugal, 24-26 July, 2006.
27. Y.-S. Ma, "Web Service Oriented Standard Product Library", Accepted and to be presented to International Conference on Agile Manufacturing ICAM-2006, Norfolk, Virginia, USA, July 19–20, 2006.
28. Y. -S. Ma, Q. Z. Yang, and B. Song, "Product Lifecycle Analysis and Optimization in an Eco-value Based, Sustainable and Unified Approach", **2006 IEEE International Conference on Industrial Informatics, INDIN'06 (16-18 Aug 2006)**, Singapore, pp. 537-541.
29. G. Thimm, Y.-S. Ma, S. G. Lee, D. Liu, and K. Chua, "An investigation into the early and retirement life-cycle stages: tools, requirements", International Conference on Product Lifecycle Management (PLM07), Politecnico di Milano, 11-13 July, 2007.
30. Y.-S. Ma, "Research on PLM system interoperability with a feature-object-based approach", accepted in proceedings of 2008 International conference on Product Development and Reliability, August 4-6, Chengdu, China.
31. Y.-S. Ma, "New paradigm of informatics for product lifecycle management", accepted as keynote speech on 2008 International conference on Product Development and Reliability, August 4-6, Chengdu, China.
32. Khaled, Y. Ma, and J. Miller, "A Service Oriented Architecture for CAX Concurrent Collaboration," to be presented on IEEE Conference On Automation Science and Engineering, August 23-26, 2008 (CASE 2008), Washington DC, USA.

Prizes and awards

- 1986 Honored Graduate from TsingHua University, Beijing, P.R. China.
 1987 Sino-British Friendship Scholarship, awarded jointly by The National Committee for Education of P. R. China and British Council, UK.
 2002 SME president circle award for the contribution made for Singapore local chapter.

Professional experience:

September 2000 - August 2007, Associate Professor, School of Mechanical and Aerospace Engineering, Nanyang Technological University, 50 Nanyang Avenue, Singapore 639798

Courses taught:

- M6803 Computational Methods in Engineering (Msc)
- M4G06 Artificial Intelligence And Machines (BEng)
- M6229: Artificial Intelligence (Msc)
- M6210: Collaborative Product Development (Msc)
- M6233: Shop floor Integration (Msc)
- G128: Computing (BEng)
- G170: Graphics(BEng)
- M2911: Machine Elements Design (BEng)
- M364: Engineering Design (BEng)
- M268: Manufacturing Processes (BEng)

Courses or Labs developed:

- EID – C1/C2/C3: Product Development with CAD Tools

- EID – C3: Design for Assembly and Analysis
- P3.9: CAD/CAM for CNC Turn-mill Machining

Tutoring Courses:

- MP3011: Mechanical Engineering Design (BEng)
- EID-C1: Product Development Modeling with CAD Tools(BEng)
- M6-FE1072: Sketch with Circles (BEng)
- M2011: Engineering Graphics

Professional Development Course:

Product Lifecycle Management: Organization, Process and Technology

Research student supervision:

- **Mr. Tang ShaoHui** (Full-time PhD), *The investigation for a feature-oriented product database, 2002-2006, completed.*
- **Mr. Chen Gang** (Full-time PhD, co-supervisor: Ast/P Georg Thimm), *Unified feature model for the integration of CAD and CAx, since 2002-2007, completed.*
- **Mr. Wang Rui** (Full-time PhD, co-supervised with: Ast/P Georg Thimm), *Design for Process Planning: Sheet Metal Forming, since 2004, transferred to the sole supervision of Prof. Thimm.*
- **Mr. Chen Junyong** (Full-time MEng), *An integrated approach towards real time collaborative design, 2003-2004, completed.*

BEng Final Year Projects (FYPs) supervised:

- **Miss. Liu Ying**, Green product analysis and evaluation from the aspect of environmental impact, 2007.
- **Mr. Bong Chun Hian**, Feature-based collaborative engineering methods, 2007.
- **Mr. Wye Chong Yuen Eugene**, CAD-based generic mechanism library in an intelligent design environment, 2007.
- **Mr. Lim Yu Kiat, Eugene**, An investigation into PLM implementation in the marine/offshore industry, 2006.
- **Mr. Tan Tze Ti, Terence**, Analysis of an acupuncture head massager for stress relief, 2006.
- **Ms. Phua Ke Cy, (PT)** An associative product development methodology with a CAD tool, 2006.
- **Mr. Chung Chun Fai, (PT)** Generic mechanism library in an intelligent design environment with a CAD tool, 2006.
- **Ms. Ei Thei Phyu, (PT)** *Quality engineering (QE) and management with 6-sigma principles, 2005*
- **Mr. Tan Tien Boon**, *Components design and implementation of a lower extremity exoskeleton system, 2005.*
- **Mr. Guntapong Boonyanupong**, *An investigation on a collaborative research-project environment, 2004.*
- **Mr. Alvin Ang**, *Product analysis and evaluation from the aspect of environmental impact, 2005.*
- **Miss. Quan LanYing**, *Case study on the quality engineering (QE) and management, 2005.*
- **Mr. Then Tze Liang**, *A study for collaborative design methods, 2005.*
- **Mr. Tan Chi Yong**, *A study for collaborative design methods, 2005.*
- **Ms. Wong Seow Chin**, Associative features of feeding system applied in mould design, 2005.
- **Mr. Michael Stefanus**, Procedure of plastic injection molds design with undercuts, 2005.
- **Mr. Chan Chong Beng**, Development of an active database for standard components, 2005.
- **Mr. Tay Chun Hsiung**, CAD-based generic mechanism library in an intelligent design environment, 2005.
- **Mr. Goh Choon Min**, An associative product development methodology with CAD tool, 2005.
- **Mr. Kuay Wee Liang**, Feature associativity in die casting design cycle, 2004.
- **Mr. Lee Cheoung Hong**, Development of cybermould: standard component library module, 2003.
- **Mr. Edy Gunawan**, Standard component library design and applications in plastic injection mould design with CAD tools, 2002.
- **Mr. Wang Shyun Long**, Study of mould parting methods, 2002.
- **Mr. Lim Chin Hooi**, Associative plastic mould design with CAD, 2002.

- **Mr. Tony Wijaya**, Upgrading of Quickmould and case studies for the implementation of a standard component library, 2002.
- **Mr. Chan Kian Yeow Kevin**, CAD model conversion to VR application for product design, 2002.
- **Mr. Teoh Seng Kar**, Upgrading of QuickMould, 2002.

MSc Dissertation Projects supervised:

- **Mr. Huang Jin**, *Mapping of design features into manufacturing features for aerospace parts*, 2006.
- **Mr. Bandi Venu** (co-supervisor: Dr. Zhang J.B., SIMTech), *Data modeling and fusion of wireless sensor networks for condition based maintenance (CBM)*, 2005
- **Mr. Ong Kian Beng**, *A method for the design of sheet metal works using computer-aided tools with real examples*, 2004
- **Ms. Sun Yiyang**, *A smart information management system for a small research group*, 2006.
- **Ms. Asok Asha**, *Product analysis an evaluation from the aspect of environmental impact*, 2005
- **Mr. Chandrasekar Murukurti** (co-supervisor: Dr. Zhang J.B., SIMTech), *Wireless sensor network for equipment health management*, 2005
- **Mr. Thevandria Santhamoorthy Rajeshbabu**, *Web-based mechanical object library for collaborative engineering*, 2005.
- **Mr. Zheng FengLei**, *5-Axis machining features in typical aerospace parts – a case study*, 2005.
- **Mr. Xiao Wei Guo**, *Typical design patterns of undercut mechanisms for plastic injection mould*, 2004.
- **Mr. Wei Sheau Yeng**, *A case study on the design of a mechatronic product using a collaborative CAD system in ODM industry*, 2004.
- **Mr. Subramanian Nagarajan**, *An advanced method to manage engineering changes throughout the product life cycle*, 2004.
- **Mr. Narayan Subbiah Pathiban**, *Development of a web-based standard component library*, 2004.
- **Mr. Luo HongJun**, *Investigation of mould design methodology with advanced CAD tools for small and medium enterprises*, 2004.
- **Mr. Koo Chee Kit**, *A case study on virtual product lifecycle management with a PDM package*, 2003.
- **Mr. Goh Boo Yang**, *An implementation of generic shop floor automation architecture for a SDRAM test and assembly manufacturing plant*, 2003.
- **Mr. Jiang Xiao Wei**, *The network security issues in a CIM environment*, 2003.
- **Mr. Qin Yun**, *A case study on CIM framework design for a die casting enterprise*, 2002.
- **Mr. Satya Budi**, *Electronic catalogue for press tools*, 2002.
- **Mr. Jin LiangYong**, *The enhancement of a generic assembly library in QuickMould*, 2002.

MSc Independent Research Projects supervised:

- **Ms. Zhang Fei**, *Preliminary research on product lifecycle management for marine engineering applications*, 2005
- **Mr. Teh Kim Chai**, *A case study on an integrated schedule system for equipment maintenance (semiconductor)*, 2005
- **Mr. Lu Yong**, *A case study on the process modeling of shipbuilding lifecycle*, 2005
- **Mr. Liu Kaige**, *A study of environmental impacts analysis methods and product lifecycle management in printing industry*, 2005
- **Mr. Huang Wentao**, *Quality deployment function*, 2005
- **Mr. Ding Shan**, *A study of Web-based and customer-oriented smart manufacturing systems*, 2005.
- **Mr. Tan Wan Li**, *A technological study on the new trends in sheet metal industry*, 2004.
- **Mr. Aung Min Naing Oo**, *Virtualization and Web service modeling for workflow planning*, 2005.
- **Mr. Jia Ming**, *Wire Bonder Productivity Status and Statistic Monitor through Internet (WEB)*, 2006.
- **Mr. Zhao Bo**, *MDW Automation Cycle Time Improvement (improvement of the cycle time of the media and spacer pick & place system in hard disk area to increase the efficiency)*, 2006.
- **Mr. Zhou Jia Qing**, *Progressive tool design for sheet metal*, 2006.

Research Projects

- March 14, 2005 – March 14, 2007, NTU principal investigator (PI) for A*Star SIMTech Collaborative research project: **Unified feature-based product lifecycle modeling for sustainable**

mass customization. NTU Collaborators: A/P Stephen Lee and Ast/P Georg Thimm. SIMTech PI: Dr. Zhu ChengFeng; Collaborators: Dr. Song Bin and Dr. Yang QiZhen), fund: S\$776,000 (In-kind).

- 2001-2002, “Framework for multi-discipline CAD features”, SDS Grant project (PI), NTU (S\$9,860, completed).
- 2001-2002, NTU postgraduate research project (S\$18,000), *Web-base collaborative Design*, - **Zheng H.**
- 2001-2002, NTU postgraduate research project (S\$18,000), *Associative Features in Mold Design*, - **Tong T.**
- 2001-2002, NTU postgraduate research project (S\$18,000), *Knowledge Driven Automation in Mold Design*, - **Teo, S.S.**
- 2001-2006, NTU PhD research project (S\$72,000), *The investigation for a feature-oriented product database* - **Tang, S. H.**
- 2002-2007, NTU PhD research project (S\$72,000), *Unified feature model for the integration of CAD and CAx* - **Chen, G.**
- 2003-2004, NTU postgraduate research project (S\$18,000), *An integrated approach towards real time collaborative design*, - **Chen, J.Y.**
- 2004-2007, NTU PhD research project (S\$72,000), *Design for Process Planning: Sheet Metal Forming* - **Wang, R.**
- 2004 –2005, team member of the following IMSS Pilot Projects under A*STAR (completed), *Integrating equipment health prognostics in high value manufacturing to enhance serviceability and productivity* (10% of S\$50,000)
- 2005-2006, NTU postgraduate research project (S\$18,000), *Systematic product lifecycle analysis and management with unified-feature approach*, - **Liu, Y.L.**

Profession Services

- 1993-2007, served as Honorary Secretary, Honorary Treasurer, Chairman Elected and Chapter Chairman under **Singapore chapter of Society of Manufacturing Engineers (SME) Headquartered in USA.**

1996 - Sept. 2000, Research Fellow, Senior Research Fellow and Group Manager, Singapore Institute of Manufacturing Technology (SIMTech), 71 Nanyang Drive, Singapore 638075

1999 - Sept. 2000, Group Manager (Computer Aided Product Technology), and **Senior Research Fellow.** Lead an R&D software development team with 18 members. Initiated/Developed/Managed major collaborative mechanical CAD product development with world class CAD vendors.

Developed and managed two new software products with global market recognition for the precision engineering Industry. Initiated AEC CAD Object technology R&D activities. Initiated multi-million multi-year software co-development projects with world-class CAD vendors. Championed software engineering quality taskforce in the institute to set up corporation policies and practice guidelines.

1998 – 1999, Project Leader, Research Fellow. Lead a software development team with 8 developers for a major project. Developed, commercialized a design productivity tool for plastic injection mould design. Implemented a software development methodology in the whole development cycle. Developed QA procedures applied within the group.

1996 – 1998, Developer, Research Fellow. Core developer in requirement specification, system design, and implementation for 3 modules in a software product. Designed and supervised two library implementations. High level software design and implementation experience in C++ and CAD object technology. Software engineering methodology.

1993 – 1996, Lecturer, Mechanical Engineering Department , Ngee Ann Polytechnic, 535 Clementi Road, Singapore 2159.

Teaching. Taught subjects include: CNC technology, CAD/CAM, Manufacturing Technology, AutoCAD, and GDT in Quality Assurance.

Research and Development:

1993-1995, taskforce member in charge of the integration at the enterprise layer level, to develop a CIM education system. The tasks include product data management, reverse engineering, CAPP/CAD/CAM integration, and shop floor control data flow.

1995, supervisor, completed a Tote funded project to develop a PC-controlled QC machine.

1994-1996:

- Monthly paid IT Consultant for a local company. The duty covered CAD/CAM quality/productivity improvement, IT training and IT solution study.
- Project leader, carried out two consultancy projects to develop an Automatic Grating Drawing Generation package on top of AutoCAD.
- Project leader, developed an industrial software to design scaffolding for oil refinery tank construction and services.
- AutoCAD trainer for the Computer Center of Ngee Ann Polytechnic (one of the AutoDesk authorized training centers).