CURRICULUM VITAE

Prof. Dr. Charlie C.L. Wang, Fellow of ASME (2013) & HKIE (2019)

Dept. of Mechanical, Aerospace & Civil Engineering
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PART A: PERSONAL INFORMATION

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EDUCATION

Ph.D. in Mechanical Engineering, The Hong Kong University of Science and Technology, 2002
Major: *Mechanical Engineering*

M.Phil. in Mechanical Engineering, The Hong Kong University of Science and Technology, 2000
Major: *Mechanical Engineering*

B.Eng. in Mechanical Engineering, Huazhong University of Science and Technology, China, 1998
Major: *Mechatronics Engineering*

QUALIFICATIONS

- Fellow, 2013 – Present, American Society of Mechanical Engineers (ASME)
- Fellow, 2019 – 2021, Hong Kong Institute of Engineers (HKIE)
- Senior Member, 2012 – Present, Institute of Electrical and Electronics Engineers (IEEE)
- Member, 2003 – 2012, Institute of Electrical and Electronics Engineers (IEEE)
- Member, 2002 – 2013, American Society of Mechanical Engineers (ASME)

ACADEMIC APPOINTMENTS

Professor and Chair of Smart Manufacturing (07/2020 – Present; Permanent Position)
Department of Mechanical, Aerospace and Civil Engineering
The University of Manchester, United Kingdom

Professor and Director of Intelligent Design & Manufacturing Institute
(Senior Band, 07/2018 – 07/2020; Tenured)
Department of Mechanical and Automation Engineering
The Chinese University of Hong Kong, Hong Kong

Professor and Chair of Advanced Manufacturing (01/2016 – 09/2018; Tenured)
Department of Design Engineering
Delft University of Technology, Netherlands

Professor (Junior Band, 08/2015 – 01/2016; Tenured)
Department of Mechanical and Automation Engineering
The Chinese University of Hong Kong, Hong Kong

Associate Professor (08/2009 – 07/2015; Tenured)
Department of Mechanical and Automation Engineering
The Chinese University of Hong Kong, Hong Kong

Assistant Professor (08/2003 – 07/2009)
Department of Mechanical and Automation Engineering
The Chinese University of Hong Kong, Hong Kong

Post-doctoral Researcher (10/2002 – 07/2003)
Department of Mechanical Engineering
The Hong Kong University of Science and Technology, Hong Kong

VISITING APPOINTMENTS / SECONDMENTS

Professor of Advanced Manufacturing (0.0 FTE; 10/2018 – 09/2023)
Faculty of Industrial Design Engineering
Delft University of Technology, Netherlands

Adjunct Professor (07/2020 – 07/2023)
Department of Mechanical and Automation Engineering
The Chinese University of Hong Kong, Hong Kong

Visiting Professor (01/2011 – 08/2011)
(*On Sabbatical Leave of CUHK*)
Epstein Department of Industrial and Systems Engineering
University of Southern California, Los Angeles, CA

PRIMARY RESEARCH INTERESTS

- *Digital Manufacturing*
- *Computational Design*
- *Geometric Computing*
- *Robotics*

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PART B: RESEARCH CONTRIBUTIONS

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RESEARCH AWARDS

2019 **ISSMO/Springer Prize** (with Weiming Wang, Dirk Munro, Fred van Keulen and Jun Wu)
13th World Congress of Structural and Multidisciplinary Optimization

2019 **Best Paper Award – 2nd Place** (with Tim Kuipers and Jun Wu)
International Symposium on Solid and Physical Modeling

2019 **Silver Award** (Project: Shape-Driven Design and Manufacturing Technology for Industry 4.0)
47th Geneva International Invention Exhibition

2016 **ASME CIE Excellence in Research Award**
Computers and Information in Engineering (CIE) Division
American Society of Mechanical Engineers (ASME)

2016 **Best Paper Award** (with Yuen-Shan Leung, Xiaoning Wang, Ying He and Yong-Jin Liu)
Journal of Computational Visual Media

2013 **NAMRI/SME Outstanding Paper Award** (with Xuejin Zhao, Yayue Pan, Chi Zhou and Yong Chen)
SME 41st North American Manufacturing Research Conference

2012 **Natural Science Award (2nd Class)** (with Matthew M.F. Yuen)
Ministry of Education (MOE), P.R. China

2011 **Prakash Krishnaswami CAPPD Best Paper Award** (with Pu Huang and Yong Chen)
ASME 31st Computers and Information in Engineering Conference

2009 **ASME CIE Young Engineer Award**
Computers and Information in Engineering (CIE) Division
American Society of Mechanical Engineers (ASME)

2009 **CUHK Young Researcher Award**
The Chinese University of Hong Kong

2009 **VX Corporation Best Idea Award (2nd Place)**
International CAD Conference and Exhibition

2008 **Best Paper Award** (with Yong Chen)
ASME 28th Computers and Information in Engineering Conference

2001 **Best Paper Award in Computational Methods** (with Matthew M.F. Yuen)
ASME 21st Computers and Information in Engineering Conference

OTHER RESEARCH DISTINCTIONS

2021 **Finalist of Best Student Paper** (with Tianyu Zhang, Xiangjia Chen, Guoxin Fang, Yingjun Tian)
IEEE International Conference on Automation Science and Engineering (CASE 2021)

2017 **Finalist of Best Student Paper** (with Minjing Yu and Yong-Jin Liu)
IEEE International Conference on Robotics and Biomimetics (ROBIO 2017)

2015 **Finalist of Best Application Paper** (with Ka-Chun Chan)
IEEE International Conference on Automation Science and Engineering (CASE 2015)

2013 **Best Paper Honorable Mention** (with Tsz-Ho Kwok)
The 13th International Conference on Computer-Aided Design and Computer Graphics

2010 **Top Cited Article Certification** (2005-2010)
Computer-Aided Design journal, Elsevier

PUBLICATIONS

Web-of-Science citations: 4450 (h-Index: 32); Google Scholar citations: 8676 (h-Index: 46)

Refereed Journal papers

[1] Mindan Ren, Wanping Lu, Qi Shao, Fei Han, Wenqi Ouyang, Tianyu Zhang, **Charlie C.L. Wang**, and Shi-Chi Chen, "Aberration-free large-area stitch-free 3D nano-printing based on binary holography", Optics Express, accepted, December 2021.

[2] Xiangjia Chen, Guoxin Fang, Wei-Hsin Liao, and **Charlie C.L. Wang**, "Field-based toolpath generation for 3D printing continuous fibre reinforced thermoplastic composites", Additive Manufacturing, accepted, November 2021.

[3] Tim Kuipers, Renbo Su, Jun Wu, and **Charlie C. L. Wang**, "ITIL: Interlaced topologically interlocking lattice for continuous dual-material extrusion", Additive Manufacturing, accepted, November 2021.

[4] Shengjun Liu, Tao Liu, Qiang Zou, Weiming Wang, Eugeni L. Doubrovski, and **Charlie C.L. Wang**, "Memory-efficient modeling and slicing of large-scale adaptive lattice structures", ASME Journal of Computing and Information Science in Engineering, vol.21, no.6, 061003 (16 pages), December 2021.

[5] Tianyu Zhang, Xiangjia Chen, Guoxin Fang, Yingjun Tian, and **Charlie C.L. Wang**, "Singularity-aware motion planning for multi-axis additive manufacturing", IEEE Robotics and Automation Letters, Presented at IEEE International Conference on Automation Science and Engineering (CASE 2021), Lyon, France, August 23-27, 2021, vol.6, no.4, pp.6172-6179, October 2021. **(Finalist of Best Student Paper Award)**

[6] Zishun Liu, Xingjian Han, Yuchen Zhang, Xiangjia Chen, Yukun Lai, Eugeni L. Doubrovski, Emily Whiting, and **Charlie C.L. Wang**, "Knitting 4D garment with elasticity controlled for body motion", ACM Transactions on Graphics (SIGGRAPH 2021), vol.40, no.4, article no.62 (16 pages), August 2021.

[7] Rob B.N. Scharff, Guoxin Fang, Yingjun Tian, Jun Wu, Jo M.P. Geraedts, and **Charlie C.L. Wang**, "Sensing and reconstruction of 3D deformation on pneumatic soft robots", IEEE/ASME Transactions on Mechatronics, vol.26, no.4, pp.1877-1885, August 2021.

[8] Junhao Ding, Qiang Zou, Shuo Qu, Paulo Bartolo, Xu Song, and **Charlie C.L. Wang**, "STL-free design and manufacturing paradigm for high-precision powder bed fusion", CIRP Annals - Manufacturing Technology, vol.70, no.1, pp.167-170, July 2021.

[9] Chuhua Xian, Dongjiu Zhang, Chengkai Dai, and **Charlie C.L. Wang**, "Fast generation of high fidelity RGB-D images by deep-learning with adaptive convolution", IEEE Transactions on Automation Science and Engineering, vol.18, no.3, pp.1328-1340, July 2021.

[10] Guoxin Fang, Tianyu Zhang, Sikai Zhong, Xiangjia Chen, Zichun Zhong, and **Charlie C.L. Wang**, "Reinforced FDM: multi-axis filament alignment with controlled anisotropic strength", ACM Transaction on Graphics (SIGGRAPH Asia 2020), vol.39, no.6, article no.204 (15 pages), November 2020.

[11] Yiu-Bun Wu, Bin Liu, Xiuping Liu, and **Charlie C.L. Wang**, "Data-driven human modeling by sparse representation", Computer-Aided Design, vol.128, 102913, November 2020.

[12] Tim Kuipers, Eugeni L. Doubrovski, Jun Wu, and **Charlie C.L. Wang**, "A framework for adaptive width control of dense contour-parallel toolpaths in fused deposition modeling", Computer-Aided Design, vol.128, 102907, November 2020.

[13] Chengkai Dai, Sylvain Lefebvre, Kai-Ming Yu, Jo M.P. Geraedts, and **Charlie C.L. Wang**, "Planning jerk-optimized trajectory with discrete-time constraints for redundant robots", IEEE Transactions on Automation Science and Engineering, vol.17, no.4, pp.1711-1724, October 2020.

[14] Chenming Wu, Yong-Jin Liu, and **Charlie C.L. Wang**, "Learning to accelerate decomposition for multi-directional 3D printing", IEEE Robotics and Automation Letters, Presented at IEEE International Conference on Automation Science and Engineering (CASE 2020), Hong Kong, August 20-24, 2020, vol.5, no.4, pp.5897-5904, October 2020.

[15] Guoxin Fang, Christopher-Denny Matte, Rob B.N. Scharff, Tsz-Ho Kwok, and **Charlie C.L. Wang**, "Kinematics of soft robots by geometric computing", IEEE Transactions on Robotics, vol.36, no.4, pp.1272-1286, August 2020.

[16] Chenming Wu, Chengkai Dai, Guoxin Fang, Yong-Jin Liu, and **Charlie C.L. Wang**, "General support-effective decomposition for multi-directional 3-D printing", IEEE Transactions on Automation Science and Engineering, vol.17, no.2, pp.599-610, April 2020.

[17] Lars Rossing, Rob B.N. Scharff, Bryan Chömpff, **Charlie C.L. Wang**, and Eugeni L. Doubrovski, "Bonding between silicones and thermoplastics using 3D printed mechanical interlocking", Materials & Design, vol.186, article no.108254, January 2020.

[18] Weiming Wang, Dirk Munro, **Charlie C.L. Wang**, Fred van Keulen, and Jun Wu, "Space-time topology optimization for additive manufacturing: concurrent optimization of structural layout and fabrication sequence", Structural and Multidisciplinary Optimization, vol.61, pp.1-18, January 2020. **(ISSMO/Springer Prize)**

[19] Rob B.N. Scharff, Rens M. Doornbusch, Eugeni L. Doubrovski, Jun Wu, Jo Geraedts, and **Charlie C.L. Wang**, "Color-based proprioception of soft actuators interacting with objects", IEEE/ASME Transactions on Mechatronics, vol.24, no.5, pp.1964-1973, October 2019.

[20] Chenming Wu, Rui Zeng, Jia Pan, **Charlie C.L. Wang**, and Yong-Jin Liu, "Plant phenotyping by deep-learning based planner for multi-robots ", IEEE Robotics and Automation Letters, Presented at IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2019), Macau, November 4-8, 2019, vol.4, no.4, pp.3113-3120, October 2019.

[21] Tim Kuipers, Jun Wu, and **Charlie C.L. Wang**, "CrossFill: Foam structure with graded density for continuous material extrusion", Computer-Aided Design, Special Issue of 2019 Symposium on Solid and Physical Modeling, June 17-19, 2019, Vancouver, Canada, vol.114, pp.37-50, September 2019. **(Best Paper Award - 2nd Place)**

[22] Xiaoting Zhang, Guoxin Fang, Melina Skouras, Gwenda Gieseler, **Charlie C.L. Wang**, and Emily Whiting, "Computational design of fabric formwork", ACM Transactions on Graphics (SIGGRAPH 2019), vol.38, no.4, article no.109 (13 pages), July 2019.

[23] Jimmy Etienne, Nicolas Ray, Daniele Panozzo, Samuel Hornus, **Charlie C.L. Wang**, Jonas Martinez, Sara McMains, Marc Alexa, Brian Wyvill, and Sylvain Lefebvre, "CurviSlicer: Slightly curved slicing for 3-axis printers", ACM Transactions on Graphics (SIGGRAPH 2019), vol.38, no.4, article no.81 (11 pages), July 2019.

[24] Chenming Wu, Chengkai Dai, Xiaoxi Gong, Yong-Jin Liu, Jun Wang, Xianfeng Gu, and **Charlie C.L. Wang**, "Energy-efficient coverage path planning for general terrain surfaces", IEEE Robotics and Automation Letters, Presented at IEEE International Conference on Robotics and Automation (ICRA 2019), Montreal, Canada, May 20-24, 2019, vol.4, no.3, pp.2584-2591, July 2019.

[25] Tao Hou, Jun Xu, Willemijn S. Elkhuizen, **Charlie C.L. Wang**, Jiehui Jiang, Jo M.P. Geraedts, and Yu Song, "Design of 3D wireless power transfer system based on 3D printed electronics", IEEE Access, vol.7, pp.94793 - 94805, July 2019.
[26] Wuyuan Xie, Ying Nie, Zhan Song, and **Charlie C.L. Wang**, "Mesh-based computation for solving photometric stereo with near point lighting", IEEE Computer Graphics and Applications, vol.39, no.3, pp.73-85, May/June 2019.
[27] Mingqiang Wei, Yang Tian, Wai-Man Pang, **Charlie C.L. Wang**, Ming-Yong Pang, Jun Wang, Jing Qin, and Pheng-Ann Heng, "Bas-relief modeling from normal layers", IEEE Transactions on Visualization and Computer Graphics, vol.25, no.4, pp.1651-1665, April 2019.
[28] Eric Garner, Helena M.A. Kolken, **Charlie C.L. Wang**, Amir A. Zadpoor, and Jun Wu, "Compatibility in microstructural optimization for additive manufacturing", Additive Manufacturing, vol.26, pp.65-75, March 2019.
[29] Minjing Yu, Zipeng Ye, Yongjin Liu, Ying He, and **Charlie C.L. Wang**, "LineUp: Computing chain-based physical transformation", ACM Transactions on Graphics, vol.38, no.1, article no.11 (16 pages), February 2019.
[30] Huachao Mao, Tsz-Ho Kwok, Yong Chen, and **Charlie C.L. Wang**, "Adaptive slicing based on efficient profile analysis for additive manufacturing", Computer-Aided Design, vol.107, pp.89-101, February 2019.
[31] Weiming Wang, Yong-Jin Liu, Jun Wu, Shengjing Tian, **Charlie C.L. Wang**, Ligang Liu, and Xiuping Liu, "Support-free hollowing", IEEE Transactions on Visualization and Computer Graphics, vol.24, no.10, pp.2787-2798, October 2018.
[32] Aamir Khan Jadoon, Chenming Wu, Yong-Jin Liu, Ying He, and **Charlie C.L. Wang**, "Interactive partitioning of 3D models into printable parts", IEEE Computer Graphics and Applications, vol.38, no.4, pp.38-53, July/August 2018.
[33] Chengkai Dai, **Charlie C.L. Wang**, Chenming Wu, Sylvain Lefebvre, Guoxin Fang, and Yongjin Liu, "Support-free volume printing by multi-axis motion", ACM Transactions on Graphics (SIGGRAPH 2018), vol.37, no.4, article no.134 (13 pages), July 2018.
[34] Ran Yi, Chenming Wu, Yong-Jin Liu, Ying He, and **Charlie C.L. Wang**, "Delta DLP 3D printing of large models", IEEE Transactions on Automation Science and Engineering, vol.15, no.3, pp.1193-1204, July 2018.
[35] Xiuping Liu, Liping Lin, Jun Wu, Weiming Wang, Baocai Yin, and **Charlie C.L. Wang**, "Generating sparse self-supporting wireframe models for 3D printing using mesh simplification", Graphical Models, selected papers from Computational Visual Media conference (CVM) 2018, vol.98, pp.14-23, July 2018.
[36] Chuhua Xian, Shuo Jin, and **Charlie C.L. Wang**, "Meshfree C^2-weighting for image warping", IEEE Computer Graphics and Applications, vol.38, no.1, pp.59-76, January 2018.
[37] Hamideh Khanbareh, Kevin de Boom, Ben Schelen, Rob B.N. Scharff, **Charlie C.L. Wang**, S. van der Zwaag, and Pim W.A. Groen, "Large area and flexible micro-porous piezoelectric composite sensors for soft robotic skin", Sensors and Actuators A: Physical, vol.263, pp.554-562, August 2017.
[38] Gang Xu, Tsz-Ho Kwok, and **Charlie C.L. Wang**, "Isogeometric computation reuse method for complex objects with topology-consistent volumetric parameterization", Computer-Aided Design, vol.91, pp.1–13, October 2017.
[39] Weiming Wang, Baojun Li, Sicheng Qian, Yongjin Liu, **Charlie C. L. Wang**, Ligang Liu and Xiuping Liu, "Cross section based hollowing and structural enhancement", The Visual Computer, Special Issue of Computer Graphics International 2017 Conference, vol.33, no.6-8, pp.949-960, Yokohama, Japan, June 27-30, 2017.
[40] Shuo Jin, Chengkai Dai, Yang Liu, and **Charlie C.L. Wang**, "Motion imitation based on sparsely sampled correspondence", ASME Journal of Computing and Information Science in Engineering, vol.17, no.4, 041009 (7 pages), June, 2017.
[41] Lianping Xing, **Charlie C.L. Wang**, and Kin-Chuen Hui, "Coherent spherical range-search for dynamic points on GPUs", Computer-Aided Design, vol.86, pp.12-25, May 2017.

[42] Kai-Ming Yu, Yu Wang, and **Charlie C.L. Wang**, "Smooth geometry generation in additive manufacturing file format: problem study and new formulation", Rapid Prototyping Journal, vol.23, no.1, January 2017.

[43] Yunbo Zhang, **Charlie C.L. Wang**, and Karthik Ramani, "Optimal fitting of strain-controlled flattenable mesh surfaces", International Journal of Advanced Manufacturing Technology, vol.87, no.9, pp.2873-2887, December 2016.

[44] Jun Wu, **Charlie C.L. Wang**, Xiaoting Zhang, and Rüdiger Westermann, "Self-supporting rhombic infill structures for additive manufacturing", Computer-Aided Design, vol.80, pp.32-42, November 2016.

[45] Xiaoting Zhang, Xinyi Le, Zhihao Wu, Emily Whiting, and **Charlie C.L. Wang**, "Data-driven bending elasticity design by shell thickness", Computer Graphics Forum, Eurographics Symposium on Geometry Processing 2016, June 20-24, 2016, Berlin, Germany, vol.35, no.5, pp.157-166, 2016.

[46] Shengjun Liu, **Charlie C.L. Wang**, Guido Brunnett, and Jun Wang, "A closed-form formulation of HRBF-based surface reconstruction by approximate solution", Computer-Aided Design, Special Issue of Symposium on Solid and Physical Modeling, Berlin, Germany, vol.78, pp.147-157, June 20-24, 2016.

[47] Tsz-Ho Kwok, Yanqiu Zhang, **Charlie C.L. Wang**, Yong-Jin Liu, and Kai Tang, "Styling evolution for tight-fitting garments", IEEE Transactions on Visualization and Computer Graphics, vol.22, no.5, pp.1580-1591, May 2016.

[48] Camille Schreck, Damien Rohmer, Stefanie Hahmann, Marie-Paule Cani, Shuo Jin, **Charlie C.L. Wang**, and Jean-Francis Bloch, "Nonsmooth developable geometry for interactively animating paper crumpling", ACM Transactions on Graphics, vol.35, no.1, article no.10 (18 pages), December 2015.

[49] Xiaoting Zhang, Xinyi Le, Athina Panotopoulou, Emily Whiting, and **Charlie C.L. Wang**, "Perceptual models of preference in 3D printing direction ", ACM Transactions on Graphics (SIGGRAPH Asia 2015), vol.34, no.6, article no.215 (12 pages), November 2015.

[50] Tsz-Ho Kwok, **Charlie C.L. Wang**, Dongping Deng, Yunbo Zhang, and Yong Chen, "Four-dimensional printing for freeform surfaces: design optimization of Origami and Kirigami structures", ASME Journal of Mechanical Design, vol.137, no.11, 111712 (10 pages), October 2015.

[51] Yuen-Shan Leung, Xiaoning Wang, Ying He, Yong-Jin Liu, and **Charlie C.L. Wang**, "A unified framework for isotropic meshing based on narrow-banded Euclidean distance transformation", Computational Visual Media, vol.1, no.3, pp.239-251, September 2015. **(Best Paper Award)**

[52] Kailun Hu, Shuo Jin, and **Charlie C.L. Wang**, "Support slimming for single material based additive manufacturing", Computer-Aided Design, vol.65, pp.1-10, August 2015.

[53] Ran Fan, Xiaogang Jin, and **Charlie C.L. Wang**, "Multi-region segmentation based on compact shape prior", IEEE Transactions on Automation Science and Engineering, vol.12, no.3, pp.1047-1058, July 2015.

[54] Yu Wang, Kai-Ming Yu, and **Charlie C.L. Wang**, "Spiral and conformal cooling in plastic injection molding", Computer-Aided Design, vol.63, pp.1-11, June 2015.

[55] Tsz-Ho Kwok, Kwok-Yun Yeung, and **Charlie C.L. Wang**, "Volumetric template fitting for human body reconstruction from incomplete data", Journal of Manufacturing Systems, vol.33, no.4, pp.678-689, October 2014.

[56] Tsz-Ho Kwok, and **Charlie C.L. Wang**, "Shape optimization for human-centric product with standardized components", Computer-Aided Design, vol.52, pp.40-50, July 2014**.**

[57] **Charlie C.L. Wang**, and Gershon Elber, "Multi-dimensional dynamic programming in ruled surface fitting", Computer-Aided Design, vol.51, pp39-49, June 2014.

[58] Shuo Jin, Yunbo Zhang, and **Charlie C.L. Wang**, "Deformation with enforced metrics on length, area and volume", Computer Graphics Forum, Special Issue of Eurographics 2014, vol.33, no.2, pp.429-438, April 2014.

[59] Tsz-Ho Kwok, and **Charlie C.L. Wang**, "Domain construction for volumetric cross-parameterization", Computers & Graphics, Special Issue of CAD/Graphics 2013 Conference, November 16-18, 2013, Hong Kong, vol.38, pp.86–96, February 2014. **(Best Paper Honorable Mention in CAD/Graphics 2013)**

[60] Lianping Xing, Xiaoting Zhang, **Charlie C.L. Wang** and Kin-Chuen Hui, "Highly parallel algorithms for visual perception guided surface remeshing", IEEE Computer Graphics and Application, vol.34, no.1, pp.52-64, February 2014.

[61] **Charlie C.L. Wang**, and Yong Chen, "Thickening freeform surfaces for solid fabrication", Rapid Prototyping Journal, vol.19, no.6, pp.395-406, November 2013.

[62] Kwok-Yun Yeung, Tsz-Ho Kwok, and **Charlie C.L. Wang**, "Improved skeleton tracking by duplex Kinects: a practical approach for real-time applications", ASME Journal of Computing and Information Science in Engineering, vol.13, no.4, 041007 (10 pages), October 2013.

[63] Xuejin Zhao, Yayue Pan, Chi Zhou, Yong Chen, and **Charlie C.L. Wang**, "An integrated CNC accumulation system for automatic building-around-inserts", Journal of Manufacturing Processes, vol.15, no.4, pp.432-443, October 2013.

[64] Yong Chen, and **Charlie C.L. Wang**, "Regulating complex geometries using Layered Depth-Normal Images for rapid prototyping and manufacturing", Rapid Prototyping Journal, vol.19, no.4, July 2013.

[65] Pu Huang, **Charlie C.L. Wang**, and Yong Chen, "Intersection-free and topologically faithful slicing of implicit solid", ASME Journal of Computing and Information Science in Engineering, vol.13, no.2, 021009 (13 pages), April 2013.

[66] **Charlie C.L. Wang**, and Dinesh Manocha, "GPU-based offset surface computation using point samples", Computer-Aided Design, Special Issue of 2012 Symposium on Solid and Physical Modeling, vol.45, no.2, pp.321-330, February 2013.

[67] Yuen-Shan Leung, and **Charlie C.L. Wang**, "Conservative sampling of solids in image space", IEEE Computer Graphics and Applications, vol.33, no.1, pp.14-25, January/February, 2013.

[68] **Charlie C.L. Wang**, and Dinesh Manocha, "Efficient boundary extraction of BSP solids based on clipping operations", IEEE Transactions on Visualization and Computer Graphics, vol.19, no.1, pp.16-29, January 2013.

[69] Tsz-Ho Kwok, Yunbo Zhang, and **Charlie C.L. Wang**, "Efficient optimization of common base domains for cross-parameterization", IEEE Transactions on Visualization and Computer Graphics, vol.18, no.10, pp.1678-1692, October 2012.

[70] Shengjun Liu, and **Charlie C.L. Wang**, "Quasi-interpolation for surface reconstruction from scattered data with radial basis function", Computer Aided Geometric Design, Special Issue of 2012 Geometric Modeling and Processing (GMP) conference, June 20-22, 2012, Mount Huang, vol.29, no.7, pp.435-447, October 2012.

[71] Tsz-Ho Kwok, Yunbo Zhang, and **Charlie C.L. Wang**, "Constructing common base domains by cues from Voronoi diagram", Graphical Models, Special Issue of 2012 Geometric Modeling and Processing (GMP) Conference, June 20-22, 2012, Mount Huang, vol.74, no.4, pp.152-163, July 2012.

[72] Shengjun Liu, Kwan-Chung Chan and **Charlie C.L. Wang**, "Iterative consolidation of unorganized points", IEEE Computer Graphics and Applications, vol.32, no.3, pp.70-83, May 2012.

[73] Yuwei Meng, **Charlie C.L. Wang**, and Xiaogang Jin, "Flexible shape control for automatic resizing of apparel products", Computer-Aided Design, vol.44, no.1, pp.68-76, January 2012.

[74] Samuel S.-M. Li, **Charlie C.L. Wang**, and Kin-Chuen Hui, "Bending-invariant correspondence matching on 3D human bodies for feature point extraction", IEEE Transactions on Automation Science and Engineering, vol.8, no.4, pp.805-814, October 2011.

[75] **Charlie C.L. Wang**, "Computing on rays: a parallel approach for surface mesh modeling from multi-material volumetric data", Computers in Industry, vol.62, no.7, pp.660-671, September 2011.

[76] Yu Wang, Kai-Ming Yu, **Charlie C.L. Wang**, and Yunbo Zhang, "Automatic design of conformal cooling circuit for rapid tooling", Computer-Aided Design, vol.43, no.8, pp.1001-1010, August 2011.

[77] Hanli Zhao, **Charlie C.L. Wang**, Yong Chen, and Xiaogang Jin, "Parallel and efficient Boolean on polygonal solids", The Visual Computer, Special Issue of Computer Graphics International 2011 (CGI 2011), vol.27, no.6-8, pp.507-517, Ottawa, Ontario, Canada, June 12-15, 2011.

[78] Yuen-Shan Leung, **Charlie C.L. Wang**, and Yunbo Zhang, "Localized construction of curved surfaces from polygon meshes: a simple and practical approach on GPU", Computer-Aided Design, vol.43, no.6, pp.573-585, June 2011.

[79] **Charlie C.L. Wang**, "Approximate Boolean operations on large polyhedral solids with partial mesh reconstruction", IEEE Transaction on Visualization and Computer Graphics, vol.17, no.6, pp.836-849, June 2011.

[80] Shengjun Liu, and **Charlie C.L. Wang**, "Fast intersection-free offset surface generation from freeform models with triangular meshes", IEEE Transactions on Automation Science and Engineering, vol.8, no.2, pp.347-360, April 2011.

[81] Chih-Hsing Chu, **Charlie C.L. Wang**, and Chi-Rung Tsai, "Strip approximation with Bezier patches in conical form for design and manufacturing of developable materials", International Journal of Computer Integrated Manufacturing, vol.24, no.3, pp.269-284, March 2011.

[82] Yunbo Zhang, and **Charlie C.L. Wang**, "WireWarping++: Robust and flexible surface flattening with length control", IEEE Transactions on Automation Science and Engineering, vol.8, no.1, pp.205-215, January 2011.

[83] Yong Chen, and **Charlie C.L. Wang**, "Uniform offsetting of polygonal model based on Layered Depth-Normal Images", Computer-Aided Design, vol.43, no.1, pp.31-46, January 2011.

[84] Tsz-Ho Kwok, Hoi Sheung, and **Charlie C.L. Wang**, "Fast query for exemplar-based image completion", IEEE Transactions on Image Processing, vol.19, no.12, pp.3106-3115, December 2010.

[85] **Charlie C.L. Wang**, Yunbo Zhang, and Hoi Sheung, "From designing products to fabricating them from planar materials", IEEE Computer Graphics and Applications, vol.20, no.6, pp.74-85, November 2010.

[86] Chih-Hsing Chu, Ya-Tien Tsai, **Charlie C.L. Wang**, and Tsz-Ho Kwok, "Exemplar-based statistical model for semantic parametric design of human body", Computers in Industry, *Invited Paper*, vol.61, no.6, pp.541-549, August 2010.

[87] Shengjun Liu, and **Charlie C.L. Wang**, "Orienting unorganized points for surface reconstruction", Computers & Graphics, Special Issue of IEEE International Conference on Shape Modeling and Applications (SMI 2010), vol.34, no.3, pp.209-218, Arts et Métiers ParisTech, Aix-en-Provence, France, June 21-23, 2010.

[88] Juncong Lin, Xiaogang Jin, and **Charlie C.L. Wang**, "Fusion of disconnected mesh components with branching shape", The Visual Computer, Special Issue of Computer Graphics International (CGI 2010), vol.26, no.6-8, pp.1017-1025, Nanyang Technological University, Singapore, June 8-11, 2010.

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[69] **Charlie C.L. Wang**, Matthew M.F. Yuen, and Yu Wang, " 'Thin' vs. 'Fat' client of web-based CAD tools", 2000 ASME DETC/CIE, 20th Computers and Information in Engineering Conference, Baltimore, Maryland, USA, September, 2000.

[70] **Charlie C.L. Wang**, Matthew M.F. Yuen, and Yu Wang, "Fluid simulation on the World Wide Web: transient natural convection in a cavity", 2000 ASME DETC/CIE, 26th Design Automation Conference, Baltimore, Maryland, USA, September, 2000.

[71] **Charlie C.L. Wang**, Shiang-Fong Chen, Jin Fan, and Matthew M.F. Yuen, "Two-dimensional trimmed surface development using a physics-based model", 1999 ASME DETC, 25th Design Automation Conference, Las Vegas, Nevada, USA, September, 1999.

Survey Paper

[1] Yuen-Shan Leung, Tsz-Ho Kwok, Xiangjia Li, Yang Yang, **Charlie C.L. Wang**, and Yong Chen, "Challenges and status on design and computation for emerging additive manufacturing technologies", ASME Journal of Computing and Information Science in Engineering, vol.19, no.2, 021013 (21 pages), March 2019.

[2] Jikai Liu, Andrew T. Gaynor, Shikui Chen, Zhan Kang, Krishnan Suresh, Akihiro Takezawa, Lei Li, Junji Kato, Jinyuan Tang, **Charlie C.L. Wang**, Lin Cheng, Xuan Liang, and Albert C To, "Current and future trends in topology optimization for additive manufacturing", Structural and Multidisciplinary Optimization, vol.57, no.6, pp.2457-2483, June 2018.

[3] Wei Gao, Yunbo Zhang, Devarajan Ramanujan, Karthik Ramani, Yong Chen, Christopher B. Williams, **Charlie C.L. Wang**, Yung C. Shin, Song Zhang, Pablo D. Zavattieri, "The status, challenges, and future of additive manufacturing in engineering", Computer-Aided Design, vol.69, pp.65-89, December 2015.

Monograph and Book Chapters

[1] **Charlie C.L. Wang**, *Geometric Modelling and Reasoning of Human-Centered Freeform Products*, Springer, London, UK, 2013.

[2] Chi-Chung Li, Chengkai Dai, Wei-Hsin Liao, and **Charlie C.L. Wang**, "Towards direct deposition of continuous-fibers on curved surfaces", Chapter 4, *Recent Advances in Additive Manufacturing*, 2020.

[4] Pu Huang, **Charlie C.L. Wang**, and Yong Chen, "Algorithms for layered manufacturing in image space", Book Chapter, *ASME Advances in Computers and Information in Engineering Research*, vol.1, pp.377-410, August 2014.

[5] Tsz-Ho Kwok, Yong Chen, and **Charlie C.L. Wang**, "Geometric analysis and computation using Layered Depth-Normal Images for three-dimensional microfabrication", Chapter 5, *Three-Dimensional Microfabrication Using Two-photon Polymerization*, pp.119-147, 2016.

[6] Rob B.N. Scharff, Eugeni L. Doubrovski, Wim A. Poelman, Pieter P. Jonker, **Charlie C.L. Wang**, and Jo M.P. Geraedts, "Towards behavior design of a 3D-printed soft robotic hand", *Soft Robotics: Trends, Applications and Challenges*, Proceedings of the Soft Robotics Week, pp.23-29, April 25-30, 2016, Livorno, Italy, Springer.

Book Review

[1] **Charlie C.L. Wang**, "Realizing CAD/CAM by polygonal meshes ", Computer-Aided Design, vol.43, no.4, pp.457, 2011.

Editorials

[1] **Charlie C.L. Wang**, and Yong Chen, Computer-Aided Design, Special Issue on "Geometric and Physical Modeling for Additive Manufacturing", vol.69, December 2015.

[2] **Charlie C.L. Wang**, Chih-Hsing Chu, Lihui Wang, and Karthik Ramani, guest editor, Journal of Manufacturing Systems, Special Issue on "Depth Cameras Based Techniques and Applications in Design, Manufacturing and Services", vol.33, no.4, October 2014.

[3] **Charlie C.L. Wang**, guest editor, International Journal of Computer Integrated Manufacturing, Special Issue on "Recent Technology in Design and Manufacturing Automation", vol.26, no.10, 2013.

[4] **Charlie C.L. Wang**, and Chih-Hsing Chu, guest editors, Computers in Industry, special issue on "Computer Techniques in Design and Manufacturing of Soft Products", vol.61, no.6, August 2010.

[5] Kin-Chuen Hui, Zhigeng Pan, Ronald Chi-kit Chung, **Charlie C. L. Wang**, Xiaogang Jin, Stefan Göbel, Eric C.-L. Li: Technologies for E-Learning and Digital Entertainment, Second International Conference, Edutainment 2007, Hong Kong, China, June 11-13, 2007, Springer.

[6] **Charlie C.L. Wang**, and Matthew M.F.Yuen, guest editors, Computer-Aided Design, special issue on "CAD Methods in Garment Design", vol.37, no.6, 2005.

RESEARCH GRANTS

Total: £1,722,014 (After joining UoM); ~HKD27.7M (Before joining UoM)

External Grants

- 01/2022 - 12/2023, Palo Alto Research Center (PARC, a Xerox Company), £237,288, Robot-Assisted Additive Manufacturing for Structural Electronics: Manufacturing Process Planning and Design Optimization (PI – 100%; R#####)
- 04/2022 – 08/2024, Innovate UK Knowledge Transfer Partnership (KTP) & Oxford Engineering Ltd, £280,873, KTP for Decomposition Based Process Planning of CNC Machining (PI – 60%; Co-Is: Xiaojun Zeng – 25% & Suzanne Embury – 15%; R126795)
- 08/2021 - 01/2023, 5AXISWORKS Ltd, Innovate UK Smart Grants, £101,069, Toolpath algorithms for 5XCAM hybrid manufacturing (PI – 100%; R126551)
- 06/2021 - 06/2025, Hong Kong Centre for Perceptual and Interactive Intelligence (CPII) Limited, £337,000, Automatic knitting code generation for 3D freeform models and its applications in personalized fabrication (PI – 100%; R126384)
- 01/2020 - 12/2022, HKSAR Innovation and Technology Commission (ITC) Innovation and Technology Fund (ITF), HK$3,760,585, Technology development of deformable mannequin by soft robotics (RD/PR/003/19) (PI & Project Coordinator; Funded but withdrawn when leaving CUHK)
- 07/2019 - 06/2022, HKSAR Research Grants Council (RGC) General Research Fund (GRF), HK$731,089, Computing tool-paths for strengthening parts fabricated by filament-based multi-axis 3D printing (RGC Ref No.14202219) (PI)
- 07/2019 - 03/2021, HKSAR Innovation and Technology Commission (ITC) Technology Start-up Support Scheme for Universities (TSSSU), HK$700,000 + HK$400,000, Shape Driven Tech Limited (TSSSU/CUHK/19/08/1 + TSU20ENG07) (PI & Person-in-charge)
- 05/2019 - 05/2020, HKSAR Innovation and Technology Commission (ITC) Innovation and Technology Fund (ITF), HK$553,908, Trial: Ultra-personalized design and fabrication of 3D wetsuit (ITT/032/18GP) (PI & Project Coordinator)
- 03/2018 - 02/2020, LeaDing Fellows Programme (The Netherlands), EUR 100,000, Topology optimization for additive manufacturing: considering critical process-dependent loads (Co-I)
- 01/2017 - 12/2018, Natural Science Foundation of China (NSFC – Oversea PI Scheme), RMB 200,000, Manufacturability analysis and model optimization for additive manufacturing based on offset surface (Ref. No.: 61628211) (PI)
- 07/2016 - 12/2016, Design United - 3TU Research Centre, The Netherlands, Demonstration Project, EUR 4,042, Customized 3D-printed jigs for bone surgery (Ref.: C2D1603) (PI)
- 01/2015 - 12/2017, HKSAR Research Grants Council (RGC) General Research Fund (GRF), HK$692,894, Hierarchical GPU-based solid modeling for freeform polyhedral objects (RGC Ref No.14207414) (PI)
- 01/2015 - 12/2019, Natural Science Foundation of China (NSFC), RMB3,500,000, Research on geometric models and efficient content generation for large-scale industrial 3D printers (Ref.: 61432003) (Co-I)
- 11/2014 - 04/2016, HKSAR Innovation and Technology Commission (ITC) Innovation and Technology Fund (ITF), HK$1,519,550 + HK$260,190 + HK$260,190, An IMU-based wearable real-time body motion control system for teleoperated robot (ITS/065/14 + InP/274/14 + InP/275/14) (PI & Project Coordinator)
- 08/2014 - 07/2015, Industrial Research Grant (sponsor – Nuevopak Technology Company Limited), HK$320,000, Phase Two Development of VMMC project (CUHK/7050669) (PI)
- 10/2013 - 03/2015, HKSAR Innovation and Technology Commission (ITC) Innovation and Technology Fund (ITF), HK$999,994 + HK$162,987 + HK$190,151, Design automation of customized jigs for bone tumor surgery (ITS/060/13 + InP/024/14 + InP/025/14) (PI & Project Coordinator)
- 06/2013 - 11/2015, Shenzhen Science Plan (applied from Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences), RMB520,000, Normal vector based discrete developable surface modeling and application (Grant No.: JCYJ20120903092425971) (PI)
- 03/2013 - 03/2014, Industrial Research Grant (sponsor – Hong Kong Applied Science and Technology Research Institute Company Limited), HK$440,000, 3D gesture control technology (CUHK/7050429) (PI)

- 10/2012 - 09/2013, Industrial Research Grant (sponsor – Nuevopak Technology Company Limited), HK$180,000, Phase One Development of VMMC project (CUHK/7050392) (PI)
- 03/2012 - 08/2013, HKSAR Innovation and Technology Commission (ITC) Innovation and Technology Fund (ITF), HK$949,900 + HK$234,725 + HK$176,874, Technology development and application for solid modeling by Layered Depth-Normal Images in high resolution (ITS/247/11 + InP/027/12 + InP/151/12) (PI & Project Coordinator)
- 01/2010 - 12/2012, HKSAR Research Grants Council (RGC) General Research Fund (GRF), HK$683,100, Robust and parallel reconstruction of sharp feature preserved mesh surface from unoriented noisy points, (CUHK/417109) (PI)
- 01/2009 - 06/2012, HKSAR Research Grants Council (RGC) General Research Fund (GRF), HK$768,927, GPU-based solid modeler for complex objects (CUHK/417508) (PI)
- 01/2008 - 02/2010, HKSAR Research Grants Council (RGC) General Research Fund (GRF), HK$418,000, Retrieval of structured parametric surfaces from implicitly represented multi-material models (CUHK/416307) (PI)
- 10/2007 - 09/2008, HKSAR Innovation and Technology Commission (ITC) Innovation and Technology Fund (ITF), HK$877,400, Noise simulation in virtual environment for urban design and planning (ITS/060/07) (Deputy Project Coordinator)
- 09/2007 - 08/2008, HKSAR Innovation and Technology Commission (ITC) Innovation and Technology Fund (ITF), HK$1,227,425 + HK$114,000, Technology development and application for geometric modeling of developable freeform surfaces (ITS/026/07 + InP/017/07) (PI & Project Coordinator)
- 02/2007 - 01/2008, Industrial Research Grant (sponsor - TPC (HK) Limited), HK$390,000, Deformation technology for design automation of 3D garment (CUHK/7000861) (PI)
- 01/2006 - 06/2008, HKSAR Research Grants Council (RGC) Competitive Earmarked Research Grant (CERG), HK$525,852, Design automation of customized freeform object (CUHK/412405) (Co-I)

Internal Grants

- 08/2020 – 07/2025, University of Manchester Startup Grant, £765,784, Smart Manufacturing (PI)
- 06/2019 – 06/2022, CUHK Technology and Business Development Fund, HK$200,000, Development of a 4D scanner for thermal-comfort product design (TBF19ENG005 - CUHK/3230290) (PI)
- 07/2018 – 06/2023, CUHK Startup Grant, HK$1,499,695, Highly flexible additive manufacturing system (CUHK/5501517) (PI)
- 07/2018 - 07/2020, CUHK Direct Research Grant, HK$150,000, Geometry-based simulation and optimization for 3D printed multi-material soft robots (CUHK/4055094) (PI)
- 07/2017 – 06/2018, Kick-start – PhD Course Development Grant, TU Delft, The Netherlands, EUR 5,000, Shape Modeling and Computing for Design (PI)
- 11/2016 – 11/2017, DE Carrier – Demonstration Project of DE Department, TU Delft, The Netherlands, EUR 5,007, 3D printed smart covers for products (Ref. QBG301) (PI)
- 01/2012 - 06/2013, CUHK Direct Research Grant, HK$60,492, Highly parallel point-distance computation on trimmed NURBS surface (CUHK/2050518) (PI)
- 03/2009, Special Grant for CUHK Young Researcher Award, HK$100,000 (CUHK/4411143) (PI)
- 07/2008 - 06/2010, Shun Hing Institute of Advanced Engineering (SHIAE) Research Grant, HK$764,000, Pattern computation for compression and performance garment (CUHK/8115022) (PI)
- 01/2008 - 06/2009, CUHK Direct Research Grant, HK$150,000, Preliminary research of solid modeling for complex objects on GPU (CUHK/2050400) (PI)
- 01/2007 - 06/2008, CUHK Direct Research Grant, HK$105,000, Retrieval of structured parametric surfaces from implicitly represented multi-material models (CUHK/2050374) (PI)
- 01/2006 - 06/2007, CUHK Direct Research Grant, HK$65,360, Freeform shape modeling by examples (CUHK/2050341) (PI)

SUPERVISION OF RESEARCH STUDENTS

6 PhD students under supervision; 10 graduated PhD students; 8 graduated MPhil students

Current PhD Students (The University of Manchester)

- Yuming Huang (Ph.D. Student, starting from 01/2022)

- Yinan Meng (Ph.D. Student, starting from 09/2021)
- Neelotpal Dutta (Ph.D. Student, starting from 07/2021)
- Renbo Su (Ph.D. Student, starting from 01/2021)
- Tianyu Zhang (Ph.D. Student, starting from 08/2019)
- Yingjun Tian (Ph.D. Student, starting from 08/2019)

Current PhD Students (Delft University of Technology, The Netherlands)

- Tim Kuipers (Ph.D. Student, starting from 09/2017)
- Zishun Liu (Ph.D. Student, starting from 09/2016)
- Guoxin Fang (Ph.D. Student, starting from 09/2016)

Graduated PhD Students (Delft University of Technology, The Netherlands)

- Rob Scharff (Ph.D., 2021; *Soft Robotic Manipulators with Proprioception*)
- Chengkai Dai (Ph.D., 2020; *Material Deposition in 3D Space: Additive Manufacturing Enriched by Rotational Motion*)

Graduated PhD Students (The Chinese University of Hong Kong)

- Yiu-Bun Wu (Ph.D., 2019; *Data-driven Human Modeling by Sparse Representation*)
- Xiaoting Zhang (Ph.D., 2016; *Shape and Orientation Optimization for 3D Printing*)
- Shuo Jin (Ph.D., 2016; *Constrained Geometric Deformation and Mapping*)
- Wuyuan Xie (Ph.D., 2015; *Photometric Stereo with Discrete Geometry Processing*)
- Lianping Xing (Ph.D., 2014; *Highly Parallel Algorithms for Visual Perception Guided Surface Remeshing*; Co-supervised with Prof. K.-C. Hui)
- Tsz-Ho Kwok (Ph.D., 2013; *Cross-Parameterization and Its Applications in Customized Design*)
- Yuen-Shan Leung (Ph.D., 2012; *Highly Parallel Solid Modeling in Image Space*)
- Yunbo Zhang (Ph.D., 2012; *Surface Modeling and Flattening for Products Fabricated by Slightly Extensible Planar Materials*)

Graduated MPhil Students (The Chinese University of Hong Kong)

- Ka-Chun Chan (M.Phil., 2015; *Sampling Based Computation of MRR and Its Application in Feed-Rate Optimization for CNC Machining*)
- Yang Zheng (M.Phil., 2014; *Study on IMU-Based Human-Machine Interaction and Human Motion Capture*)
- Kailun Hu (M.Phil., 2014; *Support Slimming for Additive Manufacturing*)
- Kwok-Yun Yeung (M.Phil., 2014; *RGB-D Sensors Based Shape and Motion Modeling for Human Bodies*)
- Pu Huang (M.Phil., 2012; *Algorithms for Layered Manufacturing in Image Space*)
- Kwan-Chung Chan (M.Phil., 2011; *Iterative Consolidation on Unorganized Point Clouds and Its Application in Design*)
- Samuel Sai-Man Li (M.Phil., 2010; *Bending Invariant Correspondence Matching on 3D Model with Feature Descriptor*; Co-supervised with Prof. K.-C. Hui)
- Hoi Sheung (M.Phil., 2009; *Robust and Parallel Mesh Reconstruction from Unoriented Noisy Points*)

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PART C: OTHER EVIDENCE OF ACADEMIC AND PROFESSIONAL STANDING

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Editorial Board Membership

- Member of Editorial Board, 2012 - present, *Computer-Aided Design*
- Member of Editorial Board, 2012 - present, *International Journal of Precision Engineering and Manufacturing*
- Member of Editorial Board, 2013 - present, *Computer-Aided Design and Applications*
- Member of Editorial Board, 2020 - present, *Springer Series in Adaptive Environments*
- Associate Editor, 2013 - present, *ASME Journal of Computing and Information Science in Engineering*
- Associate Editor, 2011 - present, *Journal of Industrial and Production Engineering*
- Associate Editor, 2015 - 2018, *IEEE Transactions on Automation Science and Engineering*

Editorials for Special Issues

- Special Issue Editor, 2021, *Computers & Graphics*, Special Issue on "Computational Fabrication"
- Special Issue Editor, 2017, *ASME Journal of Mechanical Design*, Special Issue on "Data-Driven Design (D3)"
- Special Issue Editor, 2015, *Computer-Aided Design*, Special Issue on "Geometric and Physical Modeling for Additive Manufacturing"
- Special Issue Editor, 2014, *Journal of Manufacturing Systems*, Special Issue on "Depth Cameras Based Techniques and Applications in Design, Manufacturing and Services"
- Special Issue Editor, 2012, *International Journal of Computer Integrated Manufacturing*, Special Issue on "Recent Technology in Design and Manufacturing Automation"
- Special Issue Editor, 2010, *Computers in Industry*, Special Issue on "Soft Products Development"
- Special Issue Editor, 2005, *Computer-Aided Design*, Special Issue on "CAD Methods in Garment Design"

Invited Keynote/Tutorial Talks

- *Keynote Speech*, "Multi-Axis Additive Manufacturing: Support-Free and Strength Reinforcement", International CAD Conference and Exhibition (CAD'21), July 5-7, 2021, Barcelona, Catalonia, Spain
- *Invited Speech*, "Planning Jerk-Optimized Trajectory for Redundant Robots", International Symposium of Computational Numerical Control Machining, August 10-11, 2019, Dalian, China
- *Invited Speech*, "Deformation of 3D Printed Soft Robots: Sensing, Simulation and Planning", IEEE ICRA 2019 Workshop on Robot Design and Customization, May 23, 2019, Montreal, Canada
- *Keynote Speech*, "Battles with Overhang in 3D Printing", Symposium on Solid and Physical Modeling 2018, June 11-13, 2018, Bilbao, Spain
- *Keynote Speech*, "Shape and Topology Optimization for Additive Manufacturing", International Workshop of Computational Fabrication: Simulation, Optimization and Evaluation, August 25, 2017, Zhangjiajie, China
- *Keynote Speech*, "Computational Design and Fabrication: From Design Automation to New Manufacturing", International Conference on Innovative Design and Manufacturing, July 17-19, 2017, Milan, Italy
- *Tutorial Speaker*, "Topology Optimization for Computational Fabrication", Eurographics, April 24-28, 2017, Lyon, France
- *Invited Speech*, "Robot-Assisted Multi-Axis Additive Manufacturing: Decomposition and Collision-Free Planning", The Third Workshop on Smart Robotics, April 12, 2017, Tianjin, China
- *Keynote Speech*, "Fast Solid Modeling and Its Application in Feedrate Optimization", International Symposium of Computational Numerical Control Machining, March 23-25, 2017, Taiwan
- *Invited Speech*, "Geometric Computing for Robotic Applications", The Second Workshop on Smart Robotics, June 2-4, 2016, Beijing, China
- *Invited Speech*, "Supporting Structure Aware Optimization for Additive Manufacturing", 2015 Workshop on Complex Surfaces Intelligent Manufacturing, December 6-8, 2015, Changsha, China
- *Keynote Speech*, "A Closed-Form Formulation of HRBF-Based Surface Reconstruction", 2015 International Conference on Real-time Computing and Robotics, June 23-26, 2015, Changsha, China
- *Invited Speech*, "Foot-Rooted Body Motion Capture by IMU Sensors", Workshop on Visual Computing for Social and Cognitive Robots, April 15, 2015, Beijing, China
- *Course Speaker*, "3D Printing Oriented Design: Geometry and Optimization", ACM SIGGRAPH Asia, December 3-6, 2014, Shenzhen, China
- *Invited Speech*, "Computing Stable Contact Interface for Designing Customized Surgical Jigs", International Symposium on the Applications of 3-D Printing in Orthopaedics, September 20, 2014, Hong Kong
- *Invited Speech*, "Volumetric Template Fitting for Human Body Reconstruction from Incomplete Data", International Conference on Innovative Design and Manufacturing, August 13-15, 2014, Montreal, Canada
- *Invited Speech*, "GPU-based Solid Modeling for Additive Manufacturing", 1st International Conference on Progress in Additive Manufacturing, May 26-28, 2014, Singapore
- *Keynote Speech*, "Design for Human-Centered Freeform Products: What's the Next?", International CAD Conference and Exhibition (CAD'13), June 17-20, 2013, Bergamo, Italy

- *Keynote Speech*, "Geometric Modeling and Reasoning of User Customized Apparel Products", MCP-Asia Pacific 2010 - An International Conference on Mass Customization and Personalization, December 6-9, 2010, Taipei, Taiwan
- *Invited Conference Tutorial*, "Design Automation for Customized Freeform Products", International Symposium on Tools and Methods of Competitive Engineering (TMCE 2008), April 21 - 25, 2008, Izmir, Turkey.
- *Invited Conference Tutorial*, "CAD Tools in Fashion/Garment Design", International CAD Conference and Exhibition (CAD'04), May 24-28, 2004, Pattaya Beach, Thailand.

Reviews for research funding agencies

- Independent Research Fund Denmark (Panel Chair)
- Swiss National Science Foundation
- U.S.-Israel Binational Science Foundation
- Natural Sciences and Engineering Research Council of Canada
- Czech Science Foundation
- Israel Science Foundation
- The Royal Society of United Kingdom
- National Science Foundation of China

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PART D: TEACHING AND LEARNING

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AWARDS

2008 **CUHK Vice-Chancellor's Exemplary Teaching Award**
The Chinese University of Hong Kong

2008 **Faculty Exemplary Teaching Award**
Faculty of Engineering, The Chinese University of Hong Kong

2007 **Faculty Exemplary Teaching Award**
Faculty of Engineering, The Chinese University of Hong Kong

TEACHING DUTIES

The University of Manchester

- MACE40362/MACE61073 Additive Manufacturing & 3D Product Modelling (2021)
- MACE31030/MACE40510 Individual Project (3 Students, 2020/2021)
- MACE60001-60004 Research Methods & Dissertation (5 Students, 2020/2021)
- FOUN10022 Foundation Year Project (2 Groups, 2020/2021)

Delft University of Technology

- PhD Course Shape Modeling and Computing for Design (*Funded by the PhD Kickstart Fund of TU Delft graduate school*) (2017)
- ID5414 Digital Manufacturing (2016, 2017)
- ID5458 Computer Interface and Simulation (2017)
- ID4175 Advanced Design Enablers (2016, 2017, 2018)
- ID1080 Research and Design (2017)

The Chinese University of Hong Kong

- MAEG5735 Applied Computational Intelligence (2020)
- MAEG5030 Geometric Computing for Design and Manufacturing (2018, 2019)
- MAEG5030 Topics in Computer-Aided Geometric Design (2009, 2011, 2013, 2015)
- MAEG5715 Computer Interface and Simulation (2012, 2013, 2014, 2015, 2019)
- MAEG5710 Computer Aided Design and Manufacturing (2011)
- BMEG5780 Computational Modelling for Medical Applications (2009, 2011)

- MAEG4060 Virtual Reality Systems and Applications (2010, 2013)
- MAEG4020 Finite Element Modelling and Analysis (2006, 2007, 2009, 2010, 2012, 2014, 2019, 2020)
- MAEG3910 Engineering Profession (2010, 2011, 2013, 2014)
- MAEG2010 Computer Aided Drafting (2014, 2015)
- MAE4030 Heat Transfer (2009)
- ACE3080 Multimedia Data Modeling and Analysis (2004, 2005, 2006, 2007, 2008)
- ACE3160 Simulation and Interface (2003, 2004)
- ACE2040 Multimedia Technology for Design (2004, 2005, 2006, 2007, 2008)
- ACE2090 Engineering Practice (2004, 2007, 2008)
- ACE2110 Signal Processing (2004)
- IDE3810 Design Innovation Laboratory (2003)
- IDE1800 Design Computing Laboratory (2004)

University of Southern California

- ISE599 Point-Sampled Geometry for Product Design and Manufacturing (2011)

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PART E: LEADERSHIP & MANAGEMENT ROLES

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Academic Professional Leadership

- Chair, Executive Committee, Solid Modeling Association, 2021 – Present
- Past-Chair, IEEE Hong Kong Section, Joint Chapter on Robotics & Automation Society, and Control Systems Society (RACS), 2019-2020
- Chairman, IEEE Hong Kong Section, Joint Chapter on Robotics & Automation Society, and Control Systems Society (RACS), 2013-2015
- Past-Chairman, Computer-Aided Product and Process Development (CAPPD) Technical Committee, ASME CIE Division, 2012-2013
- Chairman, Computer-Aided Product and Process Development (CAPPD) Technical Committee, ASME CIE Division, 2011-2012
- Vice-Chair and Executive Committee Member, Computer-Aided Product and Process Development (CAPPD) Technical Committee, ASME CIE Division, 2010-2011

Academic Conference Leadership

- Conference Co-Chair, Symposium on Solid & Physical Modeling 2020, June 2-4, 2020, Strasbourg, France
- Program Co-Chair, 2015 SIAM Conference on Geometric and Physical Modeling (GDSPM15), October 12-14, 2015, Salt Lake City, Utah, USA
- Program Co-Chair, Shape Modeling International 2014 (SMI'14) Conference, October 28-30, 2014, Hong Kong
- Conference Chair, 12th ACM SIGGRAPH Virtual Reality Continuum and Its Applications in Industry, November 17-19, 2013, Hong Kong
- Conference Chair, International Conference on Manufacturing Automation, December 13-15, 2010, Hong Kong
- Program Co-Chair, The 2nd International Conference on E-learning and Games (Edutainment 2007), June 11-13, 2007, Hong Kong

Academic Leadership (UoM)

- 2021 - present, Assessment Lead (Deputy), Mechanical Engineering Discipline

Management Leadership (TU Delft)

- 2016 - 2018, Section Chair, Advanced Manufacturing
- 2006 - 2018, Member, Department Executive Committee

Management Leadership (CUHK)

- 2018 - 2020, Associate Director, Center for Innovation and Technology (CINTEC)
- 2018 - 2020, Member, Department Academic Personnel Committee
- 2018 - 2020, Chairman, Department Teaching and Learning Enhancement Committee
- 2018 - 2020, Member, Department Executive Committee
- 2011 - 2016, Director, MSc Program in Mechanical and Automation Engineering
- 2014 - 2016, Chairman, Department Curriculum Committee
- 2011 - 2016, Senate Committee Member, University Press
- 2009 - 2014, Member, Department Executive Committee
- 2008 - 2010, Chairman, Department Publicity Committee

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PART F: KNOWLEDGE AND TECHNOLOGY TRANSFER

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Patents

- **Charlie C.L. Wang**, "Methods for Flattening a 3D Surface into a 2D Piece", US Patent - Patent No.: 8,411,090, issued on April 2, 2013; Chinese Patent – Publication No.: CN101661626, March 3, 2010; Hong Kong Patent – Publication No.: HK1139229, September 10, 2010.
- Juncong Lin, Xiaogang Jin, **Charlie C.L. Wang**, and Kin-Chuen Hui, "Mesh composition on models with arbitrary topology", Chinese Patent – Publication No.: CN101266691, September 17, 2008.

Technology Transfer/Licensing

- FFC (TM) - Deformation Technology for Design Automation of 3D Garment, version 1.0, Licensed by TPC (HK) Limited, 01/02/2007 – 31/01/2010, HK$90,000
- FMP: Geometric Modeling of Developable Freeform Surfaces, version 1.0, Licensed by TPC (HK) Limited, 16/12/2008, HK$100,000
- FastCrossPara, version 1.0, Licensed by National Tsing Hua University, Taiwan, 01/06/2013 – 31/05/2018, HK$30,000 (Ref. No.: TN137779)

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PART G: OUTREACH AND PUBLIC ENGAGEMENT

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External Service for Professional Societies

- Member of Executive Committee, Solid Modeling Association, 2016 – 2018
- Executive Committee Member (Secretary), IEEE Hong Kong Section, Joint Chapter on Robotics & Automation Society, and Control Systems Society (RACS), 2011-2012
- Executive Committee Member (Secretary), Computer-Aided Product and Process Development (CAPPD) Technical Committee, ASME CIE Division, 2009-2010
- Executive Committee Member, ASME Hong Kong Section, 2009-2010
- Executive Committee Member (Treasurer), IEEE Hong Kong Section, Joint Chapter on Robotics & Automation Society, and Control Systems Society (RACS), 2008-2011

External Service for Academic Institutes

- Member of Academic Advisory Committee, Division of Integrative Systems and Design, Hong Kong University of Science and Technology, 01/07/2021 – 30/06/2024

Academic Conference Services

- Program Committee Member, International Conference of Geometric Modeling and Processing (GMP'22), May 11-13, 2022, Okinawa, Japan
- Program Committee Member, Eurographics 2022, April 25-29, 2022, Reims, France
- Program Committee Member, The 10th International conference on Computational Visual Media (CVM 2022), April 7-9, 2022, Beijing, China
- Scientific Committee Member, 2nd International Conference on Additive Fabrication of Composites, 25-26 November, 2021

- Associate Editor, IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2021), September 27 - October 1, 2021, Prague, Czech Republic
- Program Committee Member, Symposium on Solid & Physical Modeling 2021, September 27-29, 2021, Davis, California, USA
- Program Committee Member, International Conference of Geometric Modeling and Processing (GMP'21), Pilsen, Czech Republic, May 10-13, 2021
- Program Committee Member, The 17th International Conference on Computer-Aided Design and Computer Graphics (CAD/Graphics 2021), May 8-9, 2021, Xi'an, China
- Program Committee Member, The 9th International conference on Computational Visual Media (CVM 2021), April 21-23, 2021, Qingdao, China
- Program Committee Member, The Thirty-Fifth AAAI Conference on Artificial Intelligence (AAAI-21), February 2-9, 2021, Virtual Conference
- Associate Editor, IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2020), October 25-29, 2020, Las Vegas, USA
- Program Committee Member, Computer Graphics International 2020, June 22-25, 2020, Geneva, Switzerland
- Program Committee Member, Eurographics 2020, May 26-29, 2020, Norrkoping, Sweden
- Program Committee Member, International Conference of Geometric Modeling and Processing (GMP'20), May 13-15, 2020, Okinawa, Japan
- Scientific committee Member, International Conference on Engineering Design 2019 (ICED 2019), August 5-8, 2019, Delft, The Netherlands
- Program Committee Member, International Conference of Geometric Modeling and Processing (GMP'19), June 19-21, 2019, Vancouver, Canada
- Workshop Chair, Eurographics 2018, April 16-20, 2018, Delft, The Netherlands
- Program Committee Member, International Conference of Geometric Modeling and Processing (GMP'18), April 9-10, 2018, Aachen, Germany
- Program Committee Member, The 15th International CAD/Graphics Conference, August 26-28, 2017, Changsha, China
- Scientific committee Member, International Conference on Engineering Design 2017 (ICED 2017), August 21-25, 2017, Vancouver, Canada
- Program Committee Member, Eurographics Symposium on Geometry Processing 2017, July 3-5, 2017, London, UK.
- Program Committee Member, Computer Graphics International 2017, June 27-30, 2017, Yokohama, Japan.
- Program Committee Member, Symposium on Solid & Physical Modeling 2017, June 19-21, 2017, Berkeley, USA
- Program Committee Member, Eurographics 2017, April 24-28, 2017, Lyon, France
- Program Committee Member, International Conference of Geometric Modeling and Processing (GMP'17), April 17-19, 2017, Xiamen, Fujian, China
- Program Committee Member, 2016 Symposium on Solid and Physical Modeling, June 20-24, 2016, Berlin, Germany
- Program Committee Member, Eurographics 2016, May 9-13, 2016, Lisbon, Portugal
- Program Committee Member, International Conference of Geometric Modeling and Processing (GMP'16), April 11-13, 2016, San Antonio, USA
- Steering Committee Member, International Conference on Innovative Design and Manufacturing, January 24-26, 2016, Auckland, New Zealand
- Program Committee Member, The 14th International CAD/Graphics, August 26-28, 2015, Xi'an, China
- Scientific committee Member, International Conference on Engineering Design 2015 (ICED 2015), July 27-30, 2015, Milan, Italy
- Program Committee Member, International Conference of Geometric Modeling and Processing (GMP) 2015, June 1-3, 2015, Lugano, Switzerland
- Program Committee Member, 13th ACM SIGGRAPH Virtual Reality Continuum and Its Applications in Industry, December 2014, China

- Organization Chair, International Convention on SPM/SMI 2014, October 26-30, 2014, Hong Kong
- Program Committee Member, 2014 Symposium on Solid and Physical Modeling, October 26-28, 2014, Hong Kong, China
- Program Committee Member, 13th IEEE International Symposium on Haptic Audio-Visual Environments and Games, October 10-11, 2014, Dallas, Texas, USA
- Program Committee Member, International Conference of Geometric Modeling and Processing (GMP) 2014, June 29 - July 1, 2014, Singapore
- Program Committee Member, International CAD Conference and Exhibition 2014 (CAD'14), June 23-26, 2014, Hong Kong, China
- Program Committee Member, Eurographics 2014, April 7-11, 2014, Strasbourg, France
- Program Committee Member, The 13th International CAD/Graphics, November 16-18, 2013, Hong Kong
- Program Committee Member, 2013 SIAM Conference on Geometric and Physical Modeling (GD/SPM'13), November 11-14, 2013, Denver, USA
- Scientific Committee Member, International Conference on Engineering Design 2013 (ICED 2013), August 19-22, 2013, Seoul, Korea
- Program Committee Member, The 9th International Symposium on Visual Computing, July 29-31, 2013, Rethymnon, Crete, Greece
- Advisory Board Member, Program Committee Member, International CAD Conference and Exhibition 2013 (CAD'13), June 17-20, 2013, Bergamo, Italy
- Program Committee Member, SIGGRAPH Asia'12, Sketches and Posters Program, November 28 - December 1, 2012, Singapore
- Program Committee Member, 11th ACM SIGGRAPH Virtual Reality Continuum and Its Applications in Industry 2012, December 2-4, 2012, Singapore
- Program Committee Member, 2012 Symposium on Solid and Physical Modeling, October 29-31, 2012, Dijon, France
- Program Committee Member, The 8th International Symposium on Visual Computing, July 16-18, 2012, Rethymnon, Crete, Greece
- Program Committee Member, International Conference of Geometric Modeling and Processing (GMP) 2012, June 20-22, 2012, Mount Huang, China
- Program Committee Member, SIGGRAPH Asia'11, Sketches and Posters Program, December 13-15, 2011, Hong Kong
- Program Committee Member, ACM SIGGRAPH Virtual Reality Continuum and Its Applications in Industry 2011, December 11-12, 2011, Hong Kong
- Program Committee Member, 2011 SIAM/ACM Joint Conference on Geometric and Physical Modeling, October 24-27, 2011, Orlando, Florida, USA
- Program Committee Member, The 7th International Symposium on Visual Computing, September 26-28, 2011, Las Vegas, Nevada, USA
- Program Committee Member, The 12th International CAD/Graphics, September 15-17, 2011, Jinan, Shandong, China
- Advisory Board Member, Program Committee Member, International CAD Conference and Exhibition 2011 (CAD'11), June 27-30, 2011, Taipei, Taiwan
- Program Committee Member, SIGGRAPH Asia'10, Sketches and Posters Program, December 15-18, 2010, Seoul, Korea
- Program Committee Member, MCP-Asia Pacific 2010 - An International Conference on Mass Customization and Personalization, Taipei, Taiwan, December 6-9, 2010
- Program Committee Member, The 6th International Symposium on Visual Computing, November 29 - December 1, 2010, Las Vegas, Nevada, USA
- Program Committee Member, 2010 ACM Symposium on Geometric and Physical Modeling, September 1-3, 2010, Haifa, Israel
- Program Committee Member, The 5th International Conference of E-Learning and Games (Edutainment 2010), August 16-18, 2010, Changchun, China

- Advisory Board Member, Program Committee Member, International CAD Conference and Exhibition 2010 (CAD'10), June 21-25, 2010, Dubai, United Arab Emirates
- Program Committee Member, 2009 SIAM/ACM Joint Conference on Geometric and Physical Modeling, October 4-8, 2009, San Francisco, California, USA
- Program Committee Member and Organizing Committee Member, 11th IEEE International Conference on Computer-Aided Design and Computer Graphics (CAD/Graphics 2009), August 19-21, 2009, Mount Huang, China
- Program Committee Member, IEEE International Conference on Mechatronics and Automation 2009, August 9-12, 2009, Changchun, Jilin, China
- Program Committee Member, The 4th International Conference on E-learning and Games (Edutainment 2009), August 9-11, 2009, Banff, AB, Canada
- Advisory Board Member, Program Committee Member, International CAD Conference and Exhibition 2009 (CAD'09), June 8-12, 2009, Reno, Nevada, USA
- Vice-Chair, International Conference Virtual Concept 2008, October 8-10, 2008, Beijing, China
- Program Committee Member, International conference on Advances in Product Development and Reliability (PDR'08), August 4-6, 2008, Chengdu, China
- Advisory Board Member, Program Committee Member, International CAD Conference and Exhibition 2008 (CAD'08), June 23-27, 2008, Orlando, Florida, USA
- Program Committee Member, The 3rd International Conference on E-learning and Games (Edutainment 2008), June 16-18, 2008, Nanjing, China
- Section Chair, IEEE International Conference on Shape Modeling and Applications 2008 (SMI'08), June 4-6, 2008, Stony Brook University, New York, USA
- Program Committee Member, International conference of Geometric Modeling and Processing 2008 (GMP 2008), April 23-25, 2008, Hangzhou, China
- Program Committee Member, The 2nd International Workshop on Digital Media and Its Applications on Museum & Heritage (DMAMH 2007), December 10-12, 2007, Chongqing, China
- Program Committee Member, ACM Symposium on Virtual Reality Software & Technology 2007, November 5-7, 2007, Newport Beach, California, USA
- Program Committee Member, IEEE International Conference on Mechatronics and Automation 2007, August 5-8, 2007, Harbin, Heilongjiang, China
- Advisory Board Member, Program Committee Member, International CAD Conference and Exhibition 2007 (CAD'07), June 25-29, 2007, Honolulu, Hawaii, USA
- Program Chair, The 2nd International Conference on E-learning and Games (Edutainment 2007), June 11-13, 2007, Hong Kong, China
- Program Committee Member, ACM Symposium on Solid and Physical Modeling 2007, June 4-6, 2007, Beijing, China
- Program Committee Member, The First IEEE International Workshop on Digital Game and Intelligent Toy Enhanced Learning, March 26-28, 2007, National Central University, Taiwan, China
- Program Committee Member, The Fourth Annual International Conference in Computer Game Design and Technology, November 15-16, 2006, Liverpool, UK
- Scientific Committee Member, International Conference Virtual Concept 2006, November 26 - December 1, 2006, Cancun, Mexico
- Program Committee Member, CAD/Graphics 2006, October 18-20, 2006, Jinan, China
- Program Committee Member, IEEE/RSJ International Conference on Intelligent Robots and Systems 2006 (IROS 2006), October 9-15, Beijing, China
- Financial Chair, IEEE Conference on Automation Science and Engineering 2006 (IEEE CASE 2006), October 8-10, 2006, Shanghai, China
- Program Committee Member, International conference of Geometric Modeling and Processing 2006 (GMP 2006), July 26 - 28, 2006, Pittsburgh, Pennsylvania, USA
- Program Committee Member, International Conference on E-learning and Games (Edutainment 2006), April 16-18, 2006, Hangzhou, China
- Registration Chair, Program Committee Member, ACM SIGGRAPH International Conference on Virtual Reality Continuum and Its Applications (VRCIA 2006), June 14-17, 2006, Hong Kong, China

- Advisory Board Member, Program Committee Member, International CAD Conference and Exhibition 2006 (CAD'06), June 19-23, 2006, Phuket, Thailand
- Program Committee Member, Chinagraph'2006, June 28-30, 2006, Hangzhou, China
- Publication Chair, Program Committee Member, International Conference on CAD/Graphics 2005, December 7-10, 2005, Hong Kong, China
- Local Arrangements Chair of Organizing Committee, 2005 IEEE International Conference on Robotics and Biomimetics (IEEE ROBIO 2005), June 29-July 3, 2005, Hong Kong, China
- Advisory Board Member, Program Committee Member, International CAD Conference and Exhibition 2005 (CAD'05), June 20-24, 2005, Bangkok, Thailand