CURRICULUM VITAE

YONG CHEN, PH.D.

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EDUCATION

Ph. D. in Mechanical Engineering, Georgia Institute of Technology, 2001.
Major: *Computer-aided Engineering.*
Dissertation: *Computer-Aided Design for Rapid Tooling: Methods for Mold Design and Design-for-Manufacture.*
Dissertation Advisor: *David W. Rosen*

M. S. in Mechanical Engineering, Huazhong University of Science and Technology, 1996.
Major: *Computer-aided Design.*

B. S. in Mechanical Engineering, Zhejiang University, 1993.
Major: *Manufacturing Engineering.*

PROFESSIONAL EXPERIENCE

12/18~*present*: ***Professor*** (with tenure), Department of Aerospace and Mechanical Engineering, University of Southern California, Los Angeles, CA.

12/18~*present*: ***Professor***, Epstein Department of Industrial and Systems Engineering, University of Southern California, Los Angeles, CA.

7/18~06/21: ***Director***, Daniel J. Epstein Institute, Viterbi School of Engineering, University of Southern California, Los Angeles, CA.

1/14~12/18: ***Associate Professor*** (by courtesy), Department of Aerospace and Mechanical Engineering, University of Southern California, Los Angeles, CA.

6/13~12/18: ***Associate Professor*** (with tenure), Epstein Department of Industrial and Systems Engineering, University of Southern California, Los Angeles, CA.

4/14~6/14: ***Visiting Professor,*** Department of Engineering Design and Production, Aalto University, Espoo, Finland.

3/14~4/14: ***Academic Visitor,*** Department of Mechanical Engineering, National University of Singapore, Singapore.

1/14~3/14: ***Visiting Professor,*** Department of Mechanical and Automation Engineering, Chinese University of Hong Kong, Hong Kong.

7/06~*05/13*: ***Assistant Professor,*** Epstein Department of Industrial and Systems Engineering, University of Southern California, Los Angeles, CA.

8/06~ *6/07*: ***Consultant,*** 3D Systems Inc., Valencia, CA.

8/01~7/06: ***Senior R&D Engineer,*** 3D Systems Inc., Valencia, CA.

3/98~7/01: ***Doctoral Research Assistant,*** Georgia Institute of Technology, Atlanta, GA.

7/96~2/98: ***Research Scientist,*** CAD Center, Huazhong University of Science and Technology, Wuhan, Hubei, China.

7/96~2/98: ***Lecturer,*** School of Mechanical Engineering, Huazhong University of Science and Technology, Wuhan, Hubei, China.

9/93~6/96: ***Graduate Research Assistant,*** Huazhong University of Science and Technology, Wuhan, Hubei, China.

AWARDS

- 2021: **Best Paper Award**, ASME 2021 Manufacturing Science and Engineering Conference (MSEC2021), Virtual (hosted by the University of Cincinnati), June 2021.
- 2020: **Best Paper Award (2nd Place)**, ASME 2020 Manufacturing Science and Engineering Conference (MSEC2020), Cincinnati, Ohio, June 2020.
- 2020: **USC Stevens Center for Innovation Commercialization Award**, University of Southern California, April 2020.
- 2018: **Outstanding Paper Award**, SME 46th North American Manufacturing Research Conference (NAMRC), College Station, Texas, June 2018.
- 2018: **USC Stevens Center for Innovation Commercialization Award**, University of Southern California, April 2018.
- 2018: **Outstanding Engineering Merit Award 2017**, Orange County Engineering Council, Santa Ana, California, February 2018.
- 2017: **Outstanding Paper Award**, SME 45th North American Manufacturing Research Conference (NAMRC), Los Angeles, California, June 2017.
- 2016: **Outstanding Paper Award**, SME 44th North American Manufacturing Research Conference (NAMRC), Blacksburg, Virginia, June 2016.
- 2014: **Best Application Paper Award Finalist**, IEEE International Conference on Automation Science and Engineering (CASE 2014), Taipei, Taiwan, August 2014.
- 2013: **Outstanding Paper Award**, SME 41st North American Manufacturing Research Conference (NAMRC), Madison, Wisconsin, June 2013.
- 2013: **Honorable Mention Paper Award**, 8th International Conference on MicroManufacturing (ICOMM 2013), Victoria, BC, Canada, March 2013.
- 2012: **Faculty Early Career Development (CAREER) Award**, National Science Foundation (NSF), January 2012.
- 2012: **CAPPD Best Paper Award**, ASME 32nd Computers and Information in Engineering Conference, Chicago, IL, August 2012.

- 2012: **Best Paper Award (3rd Place)**, ASME 2012 Manufacturing Science and Engineering Conference (MSEC2012), Notre Dame, IN, June 2012.
- 2012: **Outstanding Paper Award - Winner**, *Rapid Prototyping Journal*, Emerald Group Publishing Limited, for the paper "A Layerless Additive Manufacturing Process based on CNC Accumulation." Vol. 17, No. 3, pp. 218-227, 2011.
- 2011: **CAPPD Best Paper Award**, ASME 31st Computers and Information in Engineering Conference, Washington DC, August 2011.
- 2011: **Outstanding Paper Award**, SME 39th North American Manufacturing Research Conference (NAMRC), Corvallis, Oregon, June 2011.
- 2010: **Leadership and Service Award**, Computer-aided Product and Process Development Technical Committee, ASME CIE Division, August 16, 2010, Montreal, Quebec, Canada.
- 2010: **Symposium Outstanding Paper**, 21st International Solid Freeform Fabrication (SFF) Symposium, Austin, Texas, August 2010.
- 2008: **Best Paper Award**, ASME 28th Computers and Information in Engineering Conference, Brooklyn, New York, August 2008.
- 2008: **Outstanding Young Manufacturing Engineer Award**, Society of Manufacturing Engineers (SME).
- 2007: **Zumberge Award** for Individual Research and Innovation, USC.
- 2007: **Research Initiation Award**, Society of Manufacturing Engineers (SME).
- 2005: **Best Paper Award**, ASME 25th Computers and Information in Engineering Conference, Long Beach, California, September 2005.

FELLOWSHIPS AND HONORS

- 2022: **Program Chair**, ASME 2022 Manufacturing Science and Engineering Conferences (MSEC), June 27-July 1, West Lafayette, Indiana.
- 2021: **Program co-Chair**, ASME 2021 Manufacturing Science and Engineering Conferences (MSEC), June 22-25, Virtual conference hosted by the University of Cincinnati.
- 2019: **Program co-Chair**, ASME 2019 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference (IDETC/CIE), August 18-21, Anaheim, California.
- 2018: **Fellow**, American Society of Mechanical Engineering (ASME).
- 2017: **Conference Chair**, 2017 International Manufacturing Research Conference (NAMRC/MSEC/ICM&P), June 4-8, Los Angeles, California.
- 2017: **Plenary Speaker**, The 28th International Solid Freeform Fabrication Symposium, August 7, Austin, Texas.
- 2017: **Plenary Speaker**, 11th THU-USC Faculty Research Symposium on the 4th Industrial Revolution: Enabling Tools and Methods, May 17, Tsinghua University, Beijing, China.

- 2015: **Plenary Speaker**, 2015 SIAM Conference on Geometric and Physical Modeling, October 12, Salt Lake City, Utah.
- 2015: **Keynote Speaker**, China Graphics 2015, August 16, Beijing, China.
- 2015: **Keynote Speaker**, 2015 International Conference on Real-time Computing and Robotics, June 26, Changsha, China.
- 2015: **Session Chair on Advanced Manufacturing**, China-America Frontiers of Engineering Symposium, National Academy of Engineering, June 1-3, Irvine, California.
- 2014: **Keynote Speaker**, 4th International Conference on Additive Manufacturing and Bio-Manufacturing, November 13, Beijing, China.
- 2014: **Invited Participant**, Dagstuhl Seminar Series: "Computational Aspects of Fabrication," September 2-5, Leibniz-Zentrum für Informatik, Wadern, Germany.
- 2014: **Invited Participant**, NSF US-South Korea Workshop on Advanced Manufacturing, August 11-12, Reno, NV.
- 2014: **Keynote Speaker**, 11th Annual International CAD Conference and Exhibition, June 23, Hong Kong, China.
- 2013: **Invited Participant**, Defense Advanced Research Project Agency (DARPA) ISAT workshop *Rethinking CAD*, October 24-25, Arlington, VA.
- 2013: **Selected Participant**, German-America Frontiers of Engineering Symposium, National Academy of Engineering, April 26-28, Irvine, California.
- 2013: **Invited Speaker**, NSF Summer Institute on Additive Manufacturing, May 29-31, Northwestern University, Evanston, IL.
- 2012: **NSF Fellowship** for Summer Institute on Materiomics, May 30-June 1, Massachusetts Institute of Technology, Boston, MA.
- 2011: **NSF Fellowship** for Summer Institute on Energy Manufacturing, June 26 -July 1, Northwestern University, Evanston, IL.
- 2010: **NSF Fellowship** for Summer Institute on Laser-Manufacturing, June 1-4, Northwestern University, Evanston, IL.
- 2009: **Invited Participant**, National Science Foundation (NSF) workshop on developing *Roadmap for Additive Manufacturing*, March 30-31, Arlington, VA.
- 2009: **Selected Participant**, U.S. Frontiers of Engineering Symposium, National Academy of Engineering, September 10-12, Irvine, California.
- 2009: **NSF Fellowship** for Summer Institute on Nanoparticles and Nanocomposites, June 15-18, University of Massachusetts, Lowell, MA.
- 2008: **NSF Fellowship** for Summer Institute on Nano-Manufacturing, June 2-5, Northwestern University, Evanston, IL.
- 2007: **NSF Fellowship** for Summer Institute on Nano-Mechanics and Materials, June 23-26, University of California, Los Angeles, CA.

RESEARCH

PRIMARY RESEARCH INTERESTS

My research interests are additive manufacturing (a.k.a., 3D printing) in micro- and meso-scales. Additive manufacturing (AM) is a fabrication method that can directly convert a computer-aided design model into a physical object. It has been widely recognized as a disruptive manufacturing technology for a wide variety of applications, including aerospace, defense, dental, biomedical, and consumer products. Also, additive manufacturing enables revolutionary new designs by using complex three-dimensional shapes, heterogeneous material properties, and multi-functionality.

My research focuses on the following areas related to AM technologies: (1) novel process and machine development for additive manufacturing and functional materials; (2) new modeling and control methodologies and techniques for accurate, reliable, and fast manufacturing processes; and (3) design methods and computational tools for AM-enabled products and applications. My research would contribute to the development of AM technologies to enable people to revolutionize future engineering systems.

PUBLICATIONS

(Names listed in the order of authorship. My Google Scholar profile is at: https://scholar.google.com/citations?hl=en&user=qAKY6NAAAAAJ with the citation of **9,122**, the h-index of **45**, and the i10-index of **118** until July 2022).

Book:

B1. Hugh Bruck, **Yong Chen**, Satyandra K. Gupta, *Recent Advances in Additive Manufacturing*, World Scientific Publishing Co., 2020.

Book Chapters:

B2. Yang Yang, Xiangjia Li, **Yong Chen**, "Additive Manufacturing of Bio-inspired Structures via Nanocomposite 3D Printing." Recent Advances in Additive Manufacturing, World Scientific Publishing Co., 2020.

B3. Xiangjia Li, **Yong Chen**, "Vat Photopolymerization based Ceramic Manufacturing." ASM Handbook on Additive Manufacturing Processes, Vol. 24, ASM International, 2020.

B4. Tsz-Ho Kwok, **Yong Chen**, Charlie C. L. Wang, "Geometric Analysis and Computation Using Layered Depth-Normal Images for Three-Dimensional Microfabrication." Three-Dimensional Microfabrication Using Two-Photon Polymerization, Elsevier, 2015.

B5. Pu Huang, Charlie C. L. Wang, **Yong Chen**, "Algorithms for Layered Manufacturing in Image Space." Advances in Computers and Information in Engineering Research, ASME Press, 2014.

Refereed Journal Articles Published or Accepted for Publication:

J1. Yeowon Yoon, Yang Xu, **Yong Chen**, "Hierarchical Porous Structure Fabrication Via Hybrid Stereolithography and Inkjet Printing with Sacrificial Liquid." ***ASME Journal of Manufacturing Science and Engineering*** (accepted).

J2. Laiming Jiang, Gengxi Lu, Yushun Zeng, Yizhe Sun, Haochen Kang, James Burford, Chen Gong, Mark S. Humayun, **Yong Chen**, Qifa Zhou, "Flexible Ultrasound-induced Retinal Stimulating Piezo-Arrays for Biomimetic Visual Prostheses." ***Nature Communications***, 13, 3853, 2022.

J3. Xiangjia Li, Tommaso Baldacchini, **Yong Chen**, "An Investigation of Integrated Multi-scale 3D Printing for Hierarchical Structures Fabrication." ***ASME Journal of Micro and Nano-Manufacturing***, 9(4), 041005, 2022.

J4. Yang Xu, Fangjie Qi, Huachao Mao, Songwei Li, Yizhen Zhu, Jingwen Gong, Lu Wang, Noah Malmstadt, **Yong Chen**, "In-situ-transfer Vat Photopolymerization for Transparent Microfluidic Channels." ***Nature Communications***, Vol. 13, 1-11, 2022.

J5. Yang Yang, Ziyu Wang, Qingqing He, Xiangjia Li, Gengxi Lu, Laiming Jiang, Yushun Zeng, Brandon Bethers, Jie Jin, Shuang Lin, Siqi Xiao, Yizhen Zhu, Xianke Wu, Wenwu Xu, Qiming Wang, **Yong Chen**, "3D Printing of Nacre-inspired Structures with Exceptional Mechanical and Flame-retardant Properties." ***Research***, Vol. 2022, 9840574, 2022.

J6. Lifu Lin, Haidong Wu, Peishen Ni, **Yong Chen**, Zhaoquan Huang, Yehua Li, Kunji Lin, Pengfei Sheng, Shanghua Wu, "Additive Manufacturing of Complex-Shaped and High-Performance Aluminum Nitride-Based Components for Thermal Management." ***Additive Manufacturing***, Vol. 52, 102671, 2022.

J7. Jiawei Tian, Manqi Li, Zhonghao Han, **Yong Chen**, Xianfeng David Gui, Q. J. Ge, Shikui Chen, "Conformal Topology Optimization of Multi-material Ferromagnetic Soft Active Structures Using an Extended Level Set Method." ***Computer Methods in Applied Mechanics and Engineering***, vol. 389, 114394, 2022.

J8. Ye Yang, Songwei Li, Han Xu, Yang Xu, **Yong Chen**, "Fabrication of Flexible Microheater with Tunable Heating Capabilities by Direct Laser Writing and Selective Electrodeposition." ***Journal of Manufacturing Processes***, vol. 74, 88-99, 2022.

J9. Wenxuan Jia, Yuen-shan Leung, Huachao Mao, Han Xu, Chi Zhou, **Yong Chen**, "Hybrid-light-source Stereolithography for Fabricating Macro-objects with Micro-textures." ***ASME Journal of Manufacturing Science and Engineering***, 144(3), 031003, 2022.

J10. Yushun Zeng, Laiming Jiang, Qingqing He, Robert Wodnicki, Yang Yang, **Yong Chen**, Qifa Zhou, "Recent Progress in 3D-printing Piezoelectric Materials for Biomedical Applications." ***Journal of Physics D: Applied Physics***, 55, 013002, 2022.

J11. Laiming Jiang, Gengxi Lu, Yang Yang, Yang Xu, Fangjie Qi, Jiapu Li, Benpeng Zhu, **Yong Chen**, "Multi-channel Piezo-ultrasound Implant with Hybrid Waterborne Acoustic Metastructure for Selective Wireless Energy Transfer at Megahertz Frequencies." ***Advanced Materials***, 2104251, 2021.

J12. Jie Jin, Huachao Mao, **Yong Chen**, "Photocuring-while-writing: a 3D Printing Strategy to Build Free Space Structure and Freeform Surface Texture." ***Manufacturing Letters***, 29, 113-116, 2021.

J13.Huachao Mao, Wenxuan Jia, Yuen-shan Leung, Jie Jin, **Yong Chen**, "Multi-material Stereolithography Using Curing-on-demand Printheads." ***Rapid Prototyping Journal***, 27/5, 861-871, 2021.

J14.Yang Xu, Fangjie Qi, Xiangyun Gao, Yujie Shan, Yun Zhou, **Yong Chen**, "Direct Droplet Writing – A Novel Droplet-punching Capillary-splitting 3D Printing Method for Highly Viscous Materials." ***Procedia Manufacturing***, 53, 472-483, 2021.

J15.Chi Zhou, Han Xu, **Yong Chen**, "Spatiotemporal Projection-Based Additive Manufacturing: A Data-driven Image Planning Method for Subpixel Shifting in a Split Second." ***Advanced Intelligent Systems***, 2100079, 2021.

J16.Eric O. Potma, David Knez, **Yong Chen**, Yulia Davydova, Amanda Durkin, Alexander Fast, Mihaela Balu, Brenna Norton-Baker, Rachel W. Martin, Tommaso Baldacchini, Dmitry A. Fishman, "Rapid chemically selective 3D imaging in the mid-infrared." ***Optica***, 8(7), 995-1002, 2021.

J17.Chengqian Zhang, Xiangjia Li, Laiming Jiang, Daofan Tang, Han Xu, Peng Zhao, Jianzhong Fu, Qifa Zhou, **Yong Chen**, "3D Printing of Functional Magnetic Materials: From Design to Applications." ***Advanced Functional Materials***, 2102777, 2021.

J18. Zoe Johnson, Xiangjia Li, Tea Jashashvili, Yuan Yuan, Michael Jamieson, Mark Urata, **Yong Chen**, Yang Chai, "Mesenchymal Stem Cells and 3D-osteoconductive Scaffold Regenerate Calvarial Bone in Critical Sized Defects in Swine." ***Stem Cells Translational Medicine***, 10(8), 1170-1183, 2021.

J19. Laiming Jiang, Genxi Lu, Yushun Zeng, Yizhe Sun, Runze Li, Yang Yang, Mark S. Humayun, **Yong Chen**, Qifa Zhou, "Photoacoustic and Piezo-ultrasound Hybrid-induced Energy Transfer for 3D Twining Wireless Multifunctional Implants." ***Energy and Environmental Science***, 14(3), 1490-1505, 2021.

J20. Eder Sales, Tsz-Ho Kwok, **Yong Chen**, "Function-aware Slicing Using Principle Stress Line for Toolpath Planning in Additive Manufacturing." ***Journal of Manufacturing Processes***, 64, 1420-1433, 2021.

J21. Yang Xu, Ziqi Wang, Siyu Gong, **Yong Chen**, "Reusable Supports for Additive Manufacturing." ***Additive Manufacturing***, 39, 101840, 2021.

J22. Yang Xu, Yizhen Zhu, Yifeng Sun, Jie Jin, **Yong Chen**, "A Vibration-assisted Separation Method for Constrained-surface-based Stereolithography." ***ASME Journal of Manufacturing Science and Engineering***, 143(5), 051008, 2021.

J23. Xiangjia Li, Weitong Shan, Yang Yang, Dylan Joralmon, Yizhen Zhu, Yiyu Chen, Yuan Yuan, Han Xu, Jiahui Rong, Rui Dai, Qiong Nian, Yang Chai, **Yong Chen**, "Limpet Teeth Inspired Painless Microneedles Fabricated by Magnetic Field Assisted 3D Printing." ***Advanced Functional Materials***, 31(5), 2003725, 2021 (featured as the **Inside Back Cover** of the issue).

J24. Han Xu, Shuai Chen, Huachao Mao, Fuyan Luo, **Yong Chen**, "A Numerically Controlled Shape Memory Alloy Wire Bending Process Using Vat Photopolymerization." ***Journal of Manufacturing Processes***, 56, 1322-1330, 2020.

J25. Laiming Jiang, Yang Yang, **Yong Chen**, Qifa Zhou, "Ultrasound-induced Wireless Energy Harvesting: From Materials Strategies to Functional Applications." ***Nano Energy***, 77, 105131, 2020.

J26. An Xin, Kunhao Yu, Runrun Zhang, Bingyuan Ruan, Allyson L. McGaughey, Zhangzhengrong Feng, Kyung Hoon Lee, Liming Xiong, **Yong Chen**, Amy Childress, Qiming Wang, "Bone-inspired Healing of 3D-printed Ceramics at Room Temperature." ***Materials Horizons***, 7, 2130-2140, 2020.

J27. Yang Yang, Zeyu Chen, Hongjie Hu, Ziyu Wang, Laiming Jiang, Gengxi Lu, Xiangjia Li, Ruimin Chen, Jie Jin, Haochen Kang, Hengxi Chen, Shuang Lin, Hanyu Zhao, Qifa Zhou, Sheng Xu, **Yong Chen**, "A Stretchable and Shape-conformable Thermoelectric Generator." ***Nano Letters***, 20, 4445-4453, 2020.

J28. Yushun Zeng, Laiming Jiang, Yizhe Sun, Yang Yang, Yi Quan, Shuang Wei, Gengxi Lu, Runze Li, Jiahui Rong, **Yong Chen**, Qifa Zhou, "3D-printing Piezoelectric Composite with Honeycomb Structure for Ultrasonic Devices." ***Micromachines***, 11(8), 713, 2020.

J29. Kunhao Yu, Haixu Du, An Xin, Kyung Hoon Lee, Zhangzhengrong Feng, Sami F. Masri, **Yong Chen**, Guoliang Huang, Qiming Wang, "Healable, Memorable, and Transformable Lattice Structures." ***Nature Asia Materials***, 12:26, 2020.

J30. Xiangjia Li, Yuan Yuan, Luyang Liu, Yuen-Shan Leung, Yiyu Chen, Yuxing Guo, Yang Chai, **Yong Chen**, "3D Printing of Hydroxyapatite/β-tricalcium Phosphate Scaffold with Hierarchical Porous Structure for Bone Regeneration." ***Bio-Design and Manufacturing***, 3, 15-29, 2020.

J31. Xiangjia Li, Yang Yang, Luyang Liu, Yiyu Chen, Ming Chu, Haofan Sun, Weitong Shan, **Yong Chen**, "3D Printed Cactus-inspired Spine Structures for Highly Efficient Water Collection." ***Advanced Materials Interfaces***, 7, 1901752, 2020 (featured as the **Front Cover** of the issue).

J32. Jiapu Li, Yang Yang, Zeyu Chen, Shuang Lei, Maokang Shen, Tao Zhang, Xuekai Lan, YiJie Qin, Jun Ou-Yang, Xiaofei Yang, **Yong Chen**, Ziyu Wang, Benpeng Zhu, "Self-healing: A New Skill Unlocked for Ultrasound Transducer." ***Nano Energy***, 68, 104348, 2020.

J33. Yanhui Li, Minglang Wang, Haidong Wu, Fupo He, **Yong Chen**, Shanghua Wu, "Cure Behavior of Colorful ZrO2 Suspensions During Digital Light Processing (DLP) based Stereolithography Process." ***Journal of the European Ceramic Society***, 39, 4921-4927, 2019.

J34. Ram Alluri, Xuan Song, Sofia Bougioukli, William Pannell, Venus Vakhshori, Osamu Sugiyama, Amy Tang, Sang-hyun Park, **Yong Chen**, Jay Lieberman, "Regional Gene Therapy with 3D Printed Scaffold to Heal Critical Sized Bone Defects in a Rat Model." ***Journal of Biomedical Materials Research: Part A***, 107(10), 2174-2182, 2019.

J35. Laiming Jiang, Yang Yang, Ruimin Chen, Genxi Lu, Runze Li, Jie Xing, Kirk Shung, Mark S. Humayun, Jianguo Zhu, **Yong Chen**, Qifa Zhou, "Ultrasound-induced Energy from Lead-free Piezoelectric Composite for Potential Retinal Electrical Stimulation Application." ***Advanced Functional Materials***, 29(33), 1902522, 2019 (featured as the **Back Cover** of the issue).

J36. Yuen-Shan Leung, Tsz-Ho Kwok, Huachao Mao, **Yong Chen**, "Digital Material Design Using Tensor-based Error Diffusion for Additive Manufacturing." ***Computer-aided Design***, 114, 224-235, 2019.

J37. Xiangjia Li, Huachao Mao, Yayue Pan, **Yong Chen**, "Mask Video Projection based Stereolithography with Continuous Resin Flow to Build Digital Models in Minutes." ***ASME Journal of Manufacturing Science and Engineering***, 141, 081007, 2019.

J38. Yang Yang, Xiangjia Li, Ming Chu, Haofan Sun, Jie Jin, Kunhao Yu, Qiming Wang, Qifa Zhou, **Yong Chen**, "Electrically Assisted 3D Printing of Nacre-inspired Structure with Self-sensing Capability." ***Science Advances***, 5(4), eaau9490, 2019.

J39. Yuen-Shan Leung, Tsz-Ho Kwok, Xiangjia Li, Yang Yang, Charlie C. L. Wang, **Yong Chen**, "Challenges and Status on Design and Computation for Emerging Additive Manufacturing

Technologies." ***ASME Journal of Computing and Information Science in Engineering***, 19, 021013, 2019.

J40. Zeyu Chen, Xuejun Qian, Xuan Song, Qiangguo Jiang, Rongji Huang, Yang Yang, Runze Li, Kirk Shung, **Yong Chen**, and Qifa Zhou, "Three-dimensional Printed Piezoelectric Array for Improving Acoustic Field and Spatial Resolution in Medical Ultrasonic Imaging." ***Micromachines***, 10, 170, 2019.

J41. Yuanrui Li, Huachao Mao, Pan Hu, Mark Hermes, Haneol Lim, Jongseung Yoon, Mitul Luhar, **Yong Chen**, and Wei Wu, "Bio-inspired Functional Surfaces Enabled by Multiscale Stereolithography." ***Advanced Materials Technologies***, 1800638, 2019 (featured as the **Back Cover** of the issue).

J42. Yanhui Li, **Yong Chen**, Minglang Wang, Lian Li, Haidong Wu, Fupo He, Shanghua Wu, "The Cure Performance of Modified ZrO2 Coated by Paraffin Via Projection based Stereolithography." ***Ceramics International***, 45, pp. 4084-4088, 2019.

J43. Laiming Jiang, Yang Yang, Zeyu Chen, Ruimin Chen, Gengxi Lu, Runze Li, Di Li, Xiaoyang Chen, K. K. Shung, Jianguo Zhu, **Yong Chen**, and Qifa Zhou, "Flexible Piezoelectric Ultrasonic Energy Harvester Array for Bio-implantable Wireless Generator." ***Nano Energy***, 56, pp. 216-224, 2019.

J44. Huachao Mao, Tsz-Ho Kwok, **Yong Chen**, Charlie Wang, "Adaptive Slicing based on Efficient Profile Analysis." ***Computer-aided Design***, 107, pp. 89-101, 2019.

J45. Jun Zhang, Yang Yang, Benpeng Zhu, Xiangjia Li, Jie Jin, Zeyu Chen, **Yong Chen**, and Qifa Zhou, "Multifocal Point Beam Forming by a Single Ultrasonic Transducer with 3D Printed Holograms." ***Applied Physics Letters***, 113, 243502, 2018.

J46. Xiangjia Li, Yang Yang, Benshuai Xie, Ming Chu, Haofan Sun, Siyang Hao, Yiyu Chen, **Yong Chen**, "3D Printing of Flexible Liquid Sensor based on Swelling Kinetics of Hydrogel with Carbon Nanotubes." ***Advanced Materials Technologies***, 1800476, 2018.

J47. Xiangjia Li, Benshuai Xie, Jie Jin, Yang Chai, **Yong Chen**, "3D Printing Temporary Crown and Bridge by Temperature-controlled Mask Image Projection Stereolithography." ***Procedia Manufacturing***, pp. 1023-1033, 2018.

J48. Jie Jin, Jinfan Yang, Huachao Mao, **Yong Chen**, "A Vibration-assisted Method to Reduce Separation Force for Stereolithography." ***SME Journal of Manufacturing Processes***, 34, pp. 793-801, 2018.

J49. Yang Yang, Xuan Song, Xiangjia Li, Zeyu Chen, Chi Zhou, Qifa Zhou, **Yong Chen**, "Recent Progress in Biomimetic Additive Manufacturing Technology: From Materials to Functional Structures." ***Advanced Materials***, 30(36), 1706539, 2018.

J50. William Giannobile, Yang Chai, **Yong Chen**, Kevin Healy, Nancy Lane, Michael Longaker, David Mooney, Charles Sfeir, Mark Urata, William Wagner, Ben Wu, David Kohn, "Dental, Oral and Craniofacial Regenerative Medicine." ***Journal of Dental Research***, 97(4), pp. 361-363, 2018.

J51. Yang Yang, Xiangjia Li, Xuan Zheng, Zeyu Chen, Qifa Zhou, **Yong Chen**, "3D-printed Biomimetic Superhydrophobic Structures for Microdroplet Manipulation and oil/water separation." ***Advanced Materials***, 30, pp. 1704912, 2018 (featured as the **Back Cover** of the issue).

J52. Huachao Mao, Yuen-Shan Leung, Yuanrui Li, Pan Hu, Wei Wu, **Yong Chen**, "Multiscale Stereolithography Using Shaped Beams." ***ASME Journal of Micro and Nano Manufacturing***, 5(4), 040905, 2017.

J53. Tsz-Ho Kwok, **Yong Chen**, "GDFE: Geometry-driven Finite Element for Four-dimensional Printing." ***ASME Journal of Manufacturing Science and Engineering***, 139, 111006, 2017.

J54. Xiangjia Li, **Yong Chen**, "Micro-scale Feature Fabrication Using Immersed Surface Accumulation." ***SME Journal of Manufacturing Processes***, Vol. 28, pp. 531-540, 2017.

J55. Jie Jin, **Yong Chen**, "Highly Removable Water Support for Stereolithography." ***SME Journal of Manufacturing Processes***, Vol. 28, pp. 541-549, 2017.

J56. Dongping Deng, Yang Yang, **Yong Chen**, Xing Lan, Jesse Tice, "Accurately Controlled Sequential Self-folding Structures by Polystyrene Film." ***Smart Materials and Structures***, 26, 085040, 2017.

J57. Yanzhou Ji, Zhuo Wang, Bo Wang, **Yong Chen**, Tu Zhang, Long-Qing Chen, Xuan Song, Lei Chen, "Effect of Meso-scale Geometry on Piezoelectric Performance of Additively Manufactured Flexible Polymer-Pb(ZrxTi1−x)O3 Composites." ***Advanced Engineering Materials***, pp. 1600803, 2017.

J58. Yang Yang, Zeyu Chen, Xuan Song, Zuofeng Zhang, Jun Zhang, Kirk Shung, Qifa Zhou, **Yong Chen**, "Biomimetic Anisotropic Reinforcement Architectures by Electrically Assisted Nanocomposite 3D Printing." ***Advanced Materials***, 29, pp. 1605750, 2017 (featured as the **Inside Back Cover** of the issue).

J59. Dongping Deng, Tsz-Ho Kwok, **Yong Chen**, "4D printing: Design and Fabrication of Smooth Curved Surface using Controlled Self-folding." ***ASME Journal of Mechanical Design***, 139, 081702, 2017.

J60. Haidong Wu, Wei Liu, Rongxuan He, Ziwei Wu, Qiangguo Jiang, Xuan Song, **Yong Chen**, Yanling Cheng, Shanghua Wu, "Fabrication of Dense Zirconia-toughened Alumina Ceramics through a Stereolithography-based Additive Manufacturing." ***Ceramics International***, 43(1), pp. 968-972, 2017.

J61. Tsz-Ho Kwok, Hang Ye, **Yong Chen**, Chi Zhou, Wenyao Xu, "Mass Customization: Reuse of Digital Slicing for Additive Manufacturing." ***ASME Journal of Computing and Information Science in Engineering***, 17(2), 021009, 2017.

J62. Yayue Pan, **Yong Chen**, Zuyao Yu. "Fast Mask Image Projection based Micro-stereolithography Process for Complex Geometry". ***ASME Journal of Micro- and Nano-Manufacturing***, 5(1), 014501, 2017.

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C61. **Yong Chen**, Xiaoshu Xu, "Robust Geometric Computation for Complex Component Design and Manufacturing." Proceeding of 2011 NSF Engineering Research and Innovation Conference, Atlanta, Georgia, January 4 - 7, 2011.

C62. Stephen Stoyan, **Yong Chen**. "Multi-Piece Mold Design Based on Linear Integer Programming Toward Guaranteed Optimality." Int'l Conference on Manufacturing Automation (ICMA 2010), Hong Kong, China, Dec. 13~15, 2010.

C63. **Yong Chen**, Xiaoshu Xu. "Manufacturability Analysis of Infeasible Features in Polygonal Models for Web-based Rapid Prototyping." Int'l Conference on Manufacturing Automation (ICMA 2010), Hong Kong, China, Dec. 13~15, 2010.

C64. Hamid Reza Chabok, Chi Zhou, Shima Alagha, **Yong Chen**, Qifa Zhou, and Kirk K. Shung, "Development of a Digital Micro-Manufacturing Process for High-Frequency Ultrasound Transducers." IEEE International Ultrasonics Symposium, San Diego, California, October 11 ~ 14, 2010.

C65. Chi Zhou, **Yong Chen**, "Additive Manufacturing based on Multiple Calibrated Projectors and Its Mask Image Planning." ASME Design Automation Conference, DETC2010-28922, Montreal, Quebec, Canada, Aug. 15 ~ 18, 2010.

C66. Yongqiang Li, **Yong Chen**, "Five-axis Manufacturing Simulation based on Normal Arc Mapping and Offset Volume Computation." ASME Computers and Information in Engineering Conference, DETC2010-29051, Montreal, Quebec, Canada, Aug. 15 ~ 18, 2010.

C67. **Yong Chen**, Charlie C. L. Wang, "Contouring of Structured Points with Small Features." ASME Computers and Information in Engineering Conference, DETC2010-29094, Montreal, Quebec, Canada, Aug. 15 ~ 18, 2010.

C68. Yongqiang Li, **Yong Chen**, "Beam Structure Optimization for Additive Manufacturing based on Principal Stress Lines." Proceedings of Solid Freeform Fabrication Symposium, Austin, Texas, August 8~11, 2010.

C69. **Yong Chen**, Chi Zhou, Jingyuan Lao, "Additive Manufacturing without Layers: A New Solid Freeform Fabrication Process based on CNC Accumulation." Proceedings of Solid Freeform Fabrication Symposium, Austin, Texas, August 8~11, 2010 (**SFF Symposium Outstanding Paper**).

C70. Yongqiang Li, **Yong Chen**, Chi Zhou, "Design of Flexible Skin for Target Displacements based on Meso-Structures." ASME Computers and Information in Engineering Conference, DETC2009/CIE-87137, San Diego, California, Aug. 30 ~ Sept. 2, 2009.

C71. Chi Zhou, **Yong Chen**, Richard A. Waltz, "Optimized Mask Image Projection for Solid Freeform Fabrication." ASME Design Automation Conference, DETC2009/DAC-86268, San Diego, California, Aug. 30 ~ Sept. 2, 2009.

C72. Chi Zhou, **Yong Chen**, "Calibrating Large-area Mask Projection Stereolithography for Its Accuracy and Resolution Improvements." Proceedings of Solid Freeform Fabrication Symposium, Austin, Texas, August 2009.

C73. Behrokh Khoshnevis, Mahdi Yoozbashizadeh, **Yong Chen**, "Metallic Parts Fabrication with Selective Inhibition Sintering." Supplemental Proceedings: Volume 1: Fabrication, Materials, Processing and Properties, The Minerals, Metals, & Materials Society (TMS) 2009, pp. 381~388.

C74. **Yong Chen**, Charlie C. L. Wang, "Layer Depth-Normal Images for Complex Geometries – Part One: Accurate Modeling and Adaptive Sampling." ASME Computers and Information in Engineering Conference, DETC2008-49432, Brooklyn, New York, August 3 ~ 6, 2008 (**Best Paper Award**).

C75. Charlie C. L. Wang, **Yong Chen**, "Layer Depth-Normal Images for Complex Geometries – Part Two: Manifold-Preserved Adaptive Contouring." ASME Computers and Information in Engineering Conference, DETC2008-49576, Brooklyn, New York, August 3 ~ 6, 2008.

C76. **Yong Chen**, Shanglong Wang, "Computer-aided Product Design with Performance-tailored Mesostructures." International CAD Conference and Exhibition, Orlando, Florida, June 23 ~ 27, 2008.

C77. **Yong Chen**, "Accurate and Robust Boolean Operations on Polygonal Models." ASME Computers and Information in Engineering Conferences, DETC2007-35731, Las Vegas, Nevada, Sept. 4 ~ 7, 2007.

C78. **Yong Chen**, "Non-uniform Offsetting for Laser Path Planning of Solid Freeform Fabrication Machines." Proceedings of Solid Freeform Fabrication Symposium, pp. 174-186, Austin, Texas, August 6 ~ 8, 2007.

C79. **Yong Chen**, "3D Texture Mapping for Rapid Manufacturing." International CAD Conference and Exhibition, Honolulu, Hawaii, June 25 ~ 29, 2007.

C80. **Yong Chen**, "A Mesh-based Geometric Modeling Method for General Structures." ASME Computers and Information in Engineering Conferences, DETC2006-99513, Philadelphia, Pennsylvania, Sept. 10 ~ 13, 2006.

C81. **Yong Chen**, Hongqing Wang, David Rosen, and Jarek Rossignac, 2005, "Filleting and Rounding Using A Point-Based Method." ASME Design Automation Conference, DETC2005/DAC-85408, Long Beach, California, Sept. 24 ~ 28, 2005.

C82. Hongqing Wang, **Yong Chen**, and David Rosen, 2005, "A Hybrid Geometric Modeling Method for Large Scale Conformal Cellular Structures." ASME Computers and Information in Engineering Conference, DETC2005/CIE-85366, Long Beach, California, Sept. 24 ~ 28, 2005 (**Best Paper Award**).

C83. **Yong Chen** and David Rosen. "A Reverse Glue Approach to Automated Construction of Multi-Piece Molds." ASME Computers and Information in Engineering Conference, DETC2003/CIE-48171, Chicago, Illinois, Sept. 9-12, 2003.

C84. David Rosen, **Yong Chen**, Shiva Sambu, Janet Allen, and Farrokh Mistree, 2002. "The Rapid Tooling Testbed: A Distributed Design-For-Manufacturing System." Int'l Conference on Manufacturing Automation (ICMA 2002), Hong Kong, China, Dec. 10~12, 2002.

C85. Shiva Sambu, **Yong Chen**, and David Rosen. "Geometric Tailoring: A Design For Manufacturing Method for Rapid Prototyping and Rapid Tooling." ASME Design for Manufacturing Conference, DETC2002/DFM-34169, Montreal, Canada, Sept. 29 ~ Oct. 2, 2002.

C86. **Yong Chen** and David Rosen. "A Region-based Method to Automated Design of Multi-Piece Molds with Application to Rapid Tooling." ASME Computers and Information in Engineering Conference, DETC2001/CIE-21294, Pittsburgh, Pennsylvania, Sept. 9-12, 2001.

C87. **Yong Chen** and David Rosen. "Problem Formulation and Basic Elements for Automated Multi-Piece Mold Design." ASME Computers and Information in Engineering Conference, DETC2001/CIE-21293, Pittsburgh, Pennsylvania, Sept. 9-12, 2001.

C88. David Rosen, **Yong Chen**, Jonathan Gerhard, Janet Allen, and Farrokh Mistree, 2000, "Design Decision Templates and Their Implementation for Distributed Design and Fabrication." ASME DETC 2000 Conference, DAC-14293, Baltimore, Maryland, Sept. 10-13, 2000.

C89. Jonathan Gerhard, Scott Duncan, **Yong Chen**, Janet Allen, David Rosen, Farrokh Mistree and Andrew Dugenske. 1999. "Towards a Decision-Based, Distributed Product Realization Environment for Engineering Systems." ASME DETC 1999 Conference, CIE-9085, Las Vegas, Nevada, Sept. 14-17, 1999.

Non-refereed Conference Proceedings (Presentation only):

C90. William Pannell, Sofia Bougioukli, Xuan Song, B Ortega, Osamu Sugiyama, Amy Tang, **Yong Chen**, Jay Lieberman. "Three-Dimensionally Printed Calcium Phosphate Scaffolds with Gene Therapy for Difficult Bone Graft Scenarios in a Rodent Model." American Academy of Orthopaedic Surgeons Annual Meeting, San Diego, CA, March 14-17, 2017.

C91. Stephen Stoyan, **Yong Chen**. "Mixed-integer Programming Approach to Multi-piece Mold Design and Supply Chain Extensions." Institute of Operational Research and Management Science (INFORMS) Annual Meeting 2011, Charlotte, NC, Nov. 15, 2011.

C92. Behrokh Khoshnevis, Anahita Afshin Navid, Mahdi Yoozbashizadeh, **Yong Chen**, "Moldless Powder Metallurgy by Sintering Inhibition." Proceedings of Industrial Engineering Research Conference, Nashville, Tennessee, May 19 ~ 23, 2007.

Theses:

Yong Chen, "Computer-aided Design for Rapid Tooling: Methods for Mold Design and Design-for-Manufacture." Ph.D. Dissertation, G. W. Woodruff School of Mechanical Engineering, Georgia Institute of Technology, Atlanta, GA, 2001.

PATENTS

Patents Issued:

P1. **Yong Chen**, Yuanrui Li, Huachao Mao, Wei Wu, "3D Printing with Variable Voxel Sizes." USP 11,230,057, January 2022.

P2. **Yong Chen**, Xiangjia Li, "Surface Projection Tool for Multi-axis Additive Manufacturing." University of Southern California. USP 11,214,005, January 2022.

P3. **Yong Chen**, Jie Jin, "SLA Additive Manufacturing Using Frozen Supports on Non-SLA Material." University of Southern California. USP 10,894,354, Issue date: January 2021.

P4. **Yong Chen**, Huachao Mao, "Linear-immersed Sweeping Accumulation for 3D Printing." University of Southern California. USP 10,814,546, Issue date: October 2020.

P5. Wei Wu, **Yong Chen**, Yuanrui Li, Huachao Mao, "3D Printing with Variable Voxel Sizes based on Optical Filter." USP 10,688,771, June 2020.

P6. **Yong Chen**, Huachao Mao, Xiangjia Li, "Mask Video Projection based Stereolithography with Continuous Resin Flow." University of Southern California. USP10,308,007, Issue date: June 2019.

P7. **Yong Chen**, Yayue Pan, "Process Planning of Meniscus Shapes for Fabricating Smooth Surfaces in Mask Image Projection based Additive Manufacturing." University of Southern California. USP 9,943,996, Issue date: April 2018.

P8. Behrokh Khoshnevis, Hongsheng Tong, **Yong Chen**, John Pham, Robert Lee. "Orthodontic Appliance with Snap Fitted, Non-Sliding Archwire." University of Southern California. USP 9,427,291, Issue date: 8/30/2016.

P9. Thomas A. Kerekes, Jouni P. Partanen, **Yong Chen** and Charles W. Hull. "Wall Smoothness, Feature Accuracy and Resolution in Projected Images Via Exposure Levels in Solid Imaging." 3D Systems, Inc. USP patent No. 9,415,544, Issue date: 8/16/2016.

P10. **Yong Chen**, Chi Zhou. "Computer Numerical Control (CNC) Additive Manufacturing." University of Southern California. USP Patent No. 9,221,216, Issue date: 12/29/2015.

P11. **Yong Chen**, Chi Zhou. "Digital Mask-image-projection-based Additive Manufacturing that Applied Shearing Force to Detach Each Added Layer." University of Southern California. USP Patent No. 9,120,270, Issue date: 9/1/2015.

P12. **Yong Chen** and Rajeev Kulkarni. "Support Volume Calculation for a CAD Model." 3D Systems, Inc. USP patent No. 6,907,307, Issue date: 6/14/2005.

Patent Applications:

P13. **Yong Chen**, Yang Xu, Huachao Mao, "In-situ-transfer Vat Photopolymerization for 3D Printing Microfluidic Devices with Precisely Controlled Channel Heights and Membrane Thicknesses." University of Southern California. August 2022 (Applied).

P14. Yang Chai, **Yong Chen**, Yuan Yuan, Yuxing Gao, Xiangjia Li, "Stem Cells and Devices for Bone Regeneration." University of Southern California. CPA 201880083414.1, December 2021 (Applied).

P15. **Yong Chen**, Huachao Mao, "Curing-on-demand Printheads for Multi-material 3D Printing." University of Southern California. USP 63/094,010, October 2020 (Applied).

P16. Yang Chai, **Yong Chen**, Yuan Yuan, Yuxing Gao, Xiangjia Li, "Stem Cells and Devices for Bone Regeneration." University of Southern California. EPO 18875376.8, May 2020 (Applied).

P17. William Pannell, Jay Lieberman, **Yong Chen**, Xuan Song, Sofia Bougioukli, "Growth Factor Transduced Cell-loaded Ceramic Scaffold for Bone Regeneration and Repair." University of Southern California. USPA 16/337,893, January 2020.

P18. **Yong Chen**, Jie Jin, "Methods and Apparatus for Vibration-assisted Stereolithography." University of Southern California. USPA 16/440,780, December 2019.

P19. **Yong Chen**, Huachao Mao, "Sliding Window Screen for Reducing Resin Refilling Time in Stereolithography." University of Southern California. USPA 16/317,786, September 2019.

P20. Yang Chai, **Yong Chen**, Yuan Yuan, Yuxing Gao, Xiangjia Li, "Stem Cells and Devices for Bone Regeneration." University of Southern California. USP 16/762,398, November 2018.

INVITED TALKS (WITHIN LAST 4 YEARS)

T1. "Projection-based Additive Manufacturing: Spatiotemporal Properties and Process Innovations." Invited Talk, International Journal of Extreme Manufacturing (IJEM) Online Forum on Additive Manufacturing, June 10, 2022.

T2. "3D Printing from Rapid Prototyping to Rapid Manufacturing." Invited Short Course, The 65th International Conference on Electron, Ion and Photon Beam Technology and Nanofabrication (EIPBN), New Orleans, LA, May 31, 2022.

T3. "Additive Manufacturing of Bio-inspired Structures via Multiscale, Multimaterial, and Multifunctional 3D Printing." School of Power and Mechanical Engineering, Wuhan University, Wuhan, Hubei, China, February 24, 2022.

T4. "Additive Manufacturing of Bio-inspired Structures via Multiscale, Multimaterial, and Multifunctional 3D Printing." Department of Mechanical and Energy Engineering, Southern University of Science and Technology, Shenzhen, China, January 11, 2022.

T5. "Multiscale, Multimaterial, and Multifunctional Additive Manufacturing of Bio-inspired Structures and Smart Devices." Department of Mechanical and Aerospace Engineering, Hong Kong University of Science and Technology, Hong Kong, China, January 5, 2022.

T6. "Additive Manufacturing of Bio-inspired Structures via Multiscale, Multimaterial, and Multifunctional 3D Printing." School of Mechanical and Electrical Engineering, Guangdong University of Technology, Guangzhou, Guangdong, China, January 4, 2022.

T7. "Multi-material Fabrication via Hybrid Vat Photopolymerization." School of Mechanical and Electrical Engineering, Guangdong University of Technology, Guangzhou, Guangdong, China, December 31, 2021.

T8. "Additive Manufacturing of Bio-inspired Structures via Multiscale, Multimaterial, and Multifunctional 3D Printing." School of Mechanical Engineering, Zhejiang University, Hangzhou, China, December 24, 2021.

T9. "Multi-material Fabrication via Hybrid Vat Photopolymerization." School of Mechanical Engineering, Jiangnan University, Wuxi, China, December 12, 2021.

T10. "Multi-material Fabrication via Hybrid Additive Manufacturing." Department of Mechanical and Electrical Engineering, Xiamen University, Xiamen, Fujian, China, December 1, 2021.

T11. "Additive Manufacturing of Bio-inspired Structures via Multiscale, Multimaterial, and Multifunctional 3D Printing." Department of Mechanical Engineering Distinguished Speaker Series, Virginia Polytechnic Institute and State University, Blacksburg, Virginia, October 4, 2021.

T12. "Additive Manufacturing of Bio-inspired Structures via Multiscale, Multimaterial, and Multifunctional 3D Printing." Department of Mechanical Engineering, University of Nevada, Reno, Nevada, September 10, 2021.

T13. "Additive Manufacturing of Bio-inspired Structures via Multiscale, Multimaterial, and Multifunctional 3D Printing." Department of Aerospace and Mechanical Engineering, University of Southern California, Los Angeles, California, January 20, 2021.

T14. "Additive Manufacturing of Bio-inspired Structures via Multiscale, Multimaterial, and Multifunctional 3D Printing." Department of Industrial and Manufacturing Systems Engineering, Kansas State University, Manhattan, Kansas, November 3, 2020.

T15. "Additive Manufacturing of Bio-inspired Structures via Multiscale, Multimaterial, and Multifunctional 3D Printing." Department of Industrial and Systems Engineering, Texas A&M University, College Station, Texas, October 30, 2020.

T16. "Additive Manufacturing of Bio-inspired Structures via Multiscale and Multimaterial 3D Printing." Contour Crafting Corp., El Segundo, California, February 14, 2020.

T17. "Additive Manufacturing of Bio-inspired Structures via Nanocomposite 3D Printing." Department of Mechanical Engineering, Texas Tech University, Lubbock, TX, December 2, 2019.

T18. "Electrically Assisted Nanocomposite 3D Printing of Bio-inspired Bouligand and Nacre Structures." School for Engineering of Matter, Transport and Engery, Arizona State University, Tempe, AZ, November 15, 2019.

T19. "Recent Progress in Biomimetic Additive Manufacturing Technology: From Materials to Functional Structures." School of Mechanical Engineering, Jiangnan University, Wuxi, China, October 22, 2019.

T20. "Additive Manufacturing of Bio-inspired Structures via Nanocomposite 3D Printing." Department of Mechanical Engineering, Stony Brook University, Stony Brook, NY, September 26, 2019.

T21. "Electrically Assisted Nanocomposite 3D Printing of Bio-inspired Bouligand and Nacre Structures." Department of Mechanical and Aerospace Engineering, Rutgers University, Piscataway, NJ, September 25, 2019.

T22. "Electrically Assisted Nanocomposite 3D Printing of Bio-inspired Bouligand and Nacre Structures." Palo Alto Research Center (PARC), Xerox, Palo Alto, CA, September 6, 2019.

T23. "Electrically Assisted Nanocomposite 3D Printing of Bio-inspired Bouligand and Nacre Structures." HP Labs, HP Inc., Palo Alto, CA, September 5, 2019.

T24. "Recent Progress in Biomimetic Additive Manufacturing Technology: From Materials to Functional Structures." Department of Mechanical and Electrical Engineering, Xiamen University, Xiamen, Fujian, China, July 3, 2019.

T25. "Recent Progress in Biomimetic Additive Manufacturing Technology: From Materials to Functional Structures." Department of Mechanical Engineering, University of British Columbia, Vancouver, BC, Canada, June 21, 2019.

T26. "Recent Progress in Biomimetic Additive Manufacturing Technology: From Materials to Functional Structures." School of Mechatronics Systems Engineering, Simon Fraser University, Surrey, BC, Canada, June 20, 2019.

T27. "Recent Progress in Biomimetic Additive Manufacturing Technology: From Materials to Functional Structures." School of Engineering, Westlake University, Hangzhou, Zhejiang, China, May 24, 2019.

T28. "Functional Bio-inspired Structures via Multi-material and Multi-scale 3D Printing." College of Mechanical and Electrical Engineering, Central South University, Changsha, Hunan, China, May 16, 2019.

T29. "Recent Progress in Biomimetic Additive Manufacturing Technology: From Materials to Functional Structures." School of Mechanical and Electrical Engineering, Guangzhou University, Guangzhou, Guangdong, China, March 14, 2019.

T30. "Recent Progress in Biomimetic Additive Manufacturing Technology: From Materials to Functional Structures." School of Mechanical and Electrical Engineering, Guangdong University of Technology, Guangzhou, Guangdong, China, March 13, 2019.

T31. "Functional Bio-inspired Structures via Multi-material and Multi-scale 3D Printing." Department of Mechanical and Automation Engineering, Chinese University of Hong Kong, Hong Kong, China, March 11, 2019.

T32. "Additive Manufacturing of Bio-inspired Structures via Nanocomposite 3D Printing." Department of Mechanical Engineering, University of Central Florida, Orlando, Florida, February 15, 2019.

CONFERENCE PRESENTATIONS

T33. (Invited) "In-situ Transfer Vat Photopolymerization for Super High-resolution Gaps." International Conference of Additive Manufacturing for a Better World, Session Polymer AM, Singapore (Hybrid Conference), August 23, 2022.

T34. "Approximate Functionally Graded Materials for Multi-material Additive Manufacturing." ASME 2018 Computers and Information in Engineering Conference (CIE), Session 8-3: Materials Modeling and Process Quality, Quebec City, Canada, August 28, 2018.

T35. "Multi-scale 3D Printing of Bioinspired Structures with Functional Surfaces." 2018 International Symposium on Flexible Automation, OS1: Additive Manufacturing Sensing and Control I, Kanazawa, Japan, July 16, 2018.

T36. "(Plenary) Automatic and Reusable Metal Support for 3D Printing." The 28th International Solid Freeform Fabrication Symposium, Plenary Session, Austin, Texas, August 7, 2017.

T37. "Invited talk: Additive Manufacturing of Controlled Anisotropic Materials via Electrically Assisted Nanocomposite Fabrication." Symposium M, 9th International Conference on Materials for Advanced Technologies (ICMAT), Singapore, June 21, 2017.

T38. "Bio-inspired Micro-scale Texture Fabrication based on Immersed Surface Accumulation Process." 2017 World Congress on Micro and Nano Manufacturing (WCMNM), Session 10: Additive Manufacturing II, Kaohsiung, Taiwan, March 29, 2017.

T39. "3D Circuit Fabrication Using 4D Printing and Direct Ink Writing." 2016 International Symposium on Flexible Automation, T2: Flexible Automation in Manufacturing Systems II, Cleveland, Ohio, August 2, 2016.

T40. "An Interactive Structural Topology Design Method based on Principal Stress Line for Additive Manufacturing." 2015 SIAM Conference on Geometric and Physical Modeling, Additive Manufacturing, MS13: Geometric Modeling and Processing in Additive Manufacturing, Salt Lake City, Utah, October 14, 2015.

T41. "Piezoelectric Device Fabrication Based on 3D Printing Barium Titanate Ceramics." International Solid Freeform Fabrication Symposium, Applications III: Electronics, Mechatronics, Robotics, Austin, Texas, August 11, 2015.

T42. "A Digital Material Design Framework for 3D Printed Heterogeneous Objects." International Solid Freeform Fabrication Symposium, CAD/CAE, Austin, Texas, August 10, 2015.

T43. "Shape Acquiring and Editing Through an Augmented Reality based 3D CAD System." 11th International CAD Conference and Exhibition (CAD2014), Virtual and Augmented Reality, Hong Kong, China, June 23, 2014.

T44. "Smooth Surface Fabrication based on Controlled Meniscus in Micro-Stereolithography." International Conference on Micromanufacturing, Additive Manufacturing, Singapore, March 26, 2014.

T45. "Micro-scale Fabrication in Large Area: Investigation on Integrating Large-Area and Micro-scale Mask Projection Stereolithography." International Solid Freeform Fabrication Symposium, Micro- and Nano-Additive Manufacturing, Austin, Texas, August 14, 2013.

T46. "An Integrated CNC Accumulation System for Automatic Building-around-inserts." SME-North American Manufacturing Research Conference, Manufacturing Systems, Madison, WI, June 11, 2013.

T47. "Fast Micro-Stereolithography Process based on Bottom-up Projection for Complex Geometry." International Conference on Micromanufacturing, Additive Manufacturing, Victoria, Canada, March 27, 2013.

T48. "Fast Recoating Methods for the Projection-based Stereolithography Process in Micro- and Macro-scales." International Solid Freeform Fabrication Symposium, Process Development I, Austin, Texas, August 7, 2012.

T49. "Investigation on PEEK Fabrication Using Mask-image-projection-based Stereolithography." International Solid Freeform Fabrication Symposium, Materials II, Austin, Texas, August 7, 2012.

T50. "Development of a Direct 3D Interface for Computer-aided Design Systems to Enable Personal Manufacturing." International Solid Freeform Fabrication Symposium, Molding I, Austin, Texas, August 6, 2012.

T51. "Ultrasound Transducer Array Fabrication based on Additive Manufacturing of Piezocomposites." ASME/ISCIE International Symposium on Flexible Automation, Applications of Additive Manufacturing Session, St. Louis, Missouri, June 18, 2012.

T52. "Rapid Manufacturing in Minutes: The Development of a Mask Projection Stereolithography Process for High-speed Fabrication." International Manufacturing Science and Engineering Conference, Layer Manufacturing Session, Notre Dame, Indiana, June 5, 2012.

T53. "Direct Digital Manufacturing of Structured Points with Complex Geometries." International Solid Freeform Fabrication Symposium, Modeling I Session, Austin, Texas, August 9, 2011.

T54. "Development of a Mask-Image-Projection based Additive Manufacturing Process for the Fabrication of Digital Materials." International Solid Freeform Fabrication Symposium, Process Development I (Plenary Session), Austin, Texas, August 8, 2011.

T55. "High-frequency Ultrasound Transducer Fabrication based on additive Manufacturing of Piezo-Composites." International Solid Freeform Fabrication Symposium, Application I Session, Austin, Texas, August 8, 2011.

T56. "Fabrication of Conformal Ultrasound Transducer Arrays and Horns Based on Multi-axis CNC Accumulation." ASME Manufacturing Science and Engineering Conference (MSEC) 2011, Corvallis, Oregon, June 16, 2011.

T57. "Multi-Piece Mold Design Based on Linear Mixed-Integer Program Toward Guaranteed Optimality." International Conference on Manufacturing Automation (ICMA) 2010, Hong Kong, China, December 14, 2010.

T58. "Manufacturability Analysis of Infeasible Features in Polygonal Models for Web-based Rapid Prototyping." International Conference on Manufacturing Automation (ICMA) 2010, Hong Kong, China, December 14, 2010.

T59. "Contouring of Structured Points with Small Features." ASME Computer in Engineering Conference, Montreal, Canada, August 18, 2010.

T60. "Five-Axis Manufacturing Simulation Based on Normal Arc Mapping, Continuous Offsetting, and Discrete Computation." ASME Computer in Engineering Conference, Montreal, Canada, August 18, 2010.

T61. "Additive Manufacturing based on Multiple Calibrated Projectors and Its Mask Image Planning." ASME Design Automation Conference, Montreal, Canada, August 17, 2010.

T62. "Additive Manufacturing without Layers: A New Solid Freeform Fabrication Process Based on CNC Accumulation." SFF Symposium, Process I Session, Austin, Texas, August 9, 2010.

T63. "Touch-RE: A Touch-based Model Acquiring Method for Personal Manufacturing." SFF Symposium, Modeling II Session, Austin, Texas, August 11, 2010.

T64. "Beam Structure Optimization for Additive Manufacturing based on Principal Stress Lines." SFF Symposium, Design Session, Austin, Texas, August 11, 2010.

T65. "Optimized Mask Image Projection for Solid Freeform Fabrication." ASME Design Automation Conference, San Diego, California, Sept. 1, 2009.

T66. "Design of Flexible Skin for Target Displacements based on Meso-Structures." ASME Computers and Information in Engineering Conference, San Diego, California, Aug. 31, 2009.

T67. "Adaptive Cells and Anisotropic Mapping for Designing Complex Structures." SFF Symposium, Modeling II Session, Austin, Texas, August 5, 2009.

T68. "Calibrating Large-area Mask Projection Stereolithography for Its Accuracy and Resolution Improvements." SFF Symposium, Process Development II Session, Austin, Texas, August 4, 2009.

T69. "A Contour-based Support Generation Method for Solid Freeform Fabrication of Complex Parts." SFF Symposium, Modeling I Session, Austin, Texas, August 3, 2009.

T70. "3-Dimensional Digital Halftoning for Layered Manufacturing based on Droplets". SME North American Manufacturing Research Conference (NAMRC), Session B-3-1, Greenville, South Carolina, May 22, 2009.

T71. "Layer Depth-Normal Images for Complex Geometries – Part One: Accurate Modeling and Adaptive Sampling." ASME Computers and Information in Engineering Conference (CIE), Session 12-1, Brooklyn, New York, August 6, 2008.

T72. "Computer-aided Product Design with Performance-tailored Mesostructures." International CAD Conference and Exhibition, Orlando, Florida, June 24, 2008.

T73. "Robust and Accurate Boolean Operations on Polygonal Models." ASME Computers and Information in Engineering Conference (CIE), Las Vegas, Nevada, Sept. 5, 2007.

T74. "Non-uniform Offsetting for Laser Path Planning of Solid Freeform Fabrication Machines." SFF Symposium, Modeling Session, Austin, Texas, August 8, 2007.

T75. "3D Texture Mapping for Rapid Manufacturing". International CAD Conference and Exhibition, Honolulu, Hawaii, June 25, 2007.

T76. "A Mesh-based Geometric Modeling Method for General Structures." ASME Computers and Information in Engineering Conference (CIE), Session 4-2, Philadelphia, PA, Sept. 11, 2006.

T77. "Filleting and Rounding Using A Point-Based Method." ASME Design Automation Conference (DAC), Long Beach, California, Sept. 26, 2005.

T78. "A Reverse Glue Approach to Automated Construction of Multi-Piece Molds." ASME Computers and Information in Engineering Conference (CIE), Chicago, Illinois, Sept. 10, 2003.

ENTREPRENEURSHIP

(A total of 5 start-up companies related to 3D printing have been created by the Ph.D. students trained in our lab and the research collaborators)

***Companies created by Ph.D. students trained in our lab*:**

- SprintRay (https://sprintray.com/) – 3D printing solution for digital dentistry. The company was created through a successful Kickstarter project and has licensed several of our patents.
- 3DEO (https://www.3deo.co/) – Production metal 3D Printing. Before founding the company, the two founders, *Matthew Petros* and *Payman Torabi*, were GRAs supported by our NSF grant (CMMI 1131271 – with Prof. Khoshnevis) on metal 3D printing.
- ZSFab (https://www.zsfab.com/) – Customized medical implants and surgical planning. The company recently received FDA 510(k) clearance for their 3D-printed orthopedic implants.

Companies created by research collaborators:

- InBrace (https://inbrace.com/) – Smartwires for visible braces. The company was created by two collaborators from USC Dental School, John Pham and Hongsheng Tong, based on our patent (US9427291B2). Before founding the company, the ComfortCorrect team in which I served as the faculty advisor won the VSoE Maseeh Entrepreneurship Prize Competition in 2014.
- Kaigent – Bone regeneration using 3D-printed scaffolds and stem cells. The company was created by USC's Alfred Mann Institute, based on our patent application (USP 16/762,398). The company is applying for FDA approval for the clinical trial of 3D-printed scaffolds on human body.

TEACHING AND EDUCATION

TEACHING AND COURSE DEVELOPMENT

University of Southern California

- AME504/ISE511L, *Mechatronics Systems Engineering* (graduate), 3 unit, Fall 2022.

- AME790, *Ph.D. Direct Research*, 3 unit, Spring 2022 (Manqi Li).
- AME790, *Ph.D. Direct Research*, 3 unit, Spring 2022 (Yeowon Yoon).
- ISE790, *Ph.D. Direct Research*, 2 unit, Fall 2021 (Han Xu).
- ENGR596, *M.S. Direct Research*, 1 unit, Fall 2021 (Songwei Li).
- ISE590, *M.S. Direct Research*, 2 unit, Spring 2021 (Fangjie Qi).
- ENGR596, *M.S. Direct Research*, 1 unit, Spring 2021 (Frank Zhang).
- ISE510/AME510, *Advanced Computational Design and Manufacturing* (graduate), 3 unit, Spring 2021. **Instr. Eval.:** 4.60/5.
- ISE511L/AME504, *Mechatronics Systems Engineering* (graduate), 3 unit, Spring 2021. **Instr. Eval.:** 4.22/5.
- ISE790, *Ph.D. Direct Research*, 5 unit, Spring 2020 (Yang Xu).
- AME590, *M.S. Direct Research*, 3 unit, Spring 2020 (Xiangyun Gao).
- ISE510/AME510, *Advanced Computational Design and Manufacturing* (graduate), 3 unit, Spring 2020. **Instr. Eval.:** 4.33/5.
- ISE232L, *Manufacturing Processes* (undergraduate), 3 unit, Spring 2020. **Instr. Eval.:** 4.0/5.
- ISE651, *Seminar in Industrial and Systems Engineering* (graduate), 1 unit, Spring 2020. **Instr. Eval.:** 4.57/5.
- ISE790, *Ph.D. Direct Research*, 6 unit, Fall 2019 (Yang Xu).
- ISE590, *M.S. Direct Research*, 2 unit, Fall 2019 (Yizhen Zhu).
- ISE511L/AME504, *Mechatronics Systems Engineering* (graduate), 3 unit, Fall 2019. **Instr. Eval.:** 3.89/5.
- ISE790, *Ph.D. Direct Research*, 2 unit, Spring 2019 (Jie Jin).
- ISE790, *Ph.D. Direct Research*, 1 unit, Spring 2019 (Han Xu).
- ISE590, *M.S. Direct Research*, 2 unit, Spring 2019 (Yujie Shan).
- ISE599, *Advanced Topics in 3D Printing* (graduate), 3 unit, Spring 2019. **Instr. Eval.:** 4.80/5.
- ISE510/AME510, *Advanced Computational Design and Manufacturing* (graduate), 3 unit, Spring 2019. **Instr. Eval.:** 4.75/5.
- AME490, *B.S Direct Research*, 3 unit, Fall 2018 (Wenxuan Jia).
- ISE790, *Ph.D. Direct Research*, 4 unit, Fall 2018 (Jie Jin).
- ISE790, *Ph.D. Direct Research*, 1 unit, Fall 2018 (Yang Xu).
- ISE511L, *Mechatronics Systems Engineering* (graduate), 3 unit, Fall 2018. **Instr. Eval.:** 4.38/5.
- ISE232L, *Manufacturing Processes* (undergraduate), 3 unit, Fall 2018. **Instr. Eval.:** 4.0/5.

- ISE790, *Ph.D. Direct Research*, 3 unit, Spring 2018 (Xiangjia Li).
- ISE790, *Ph.D. Direct Research*, 2 unit, Spring 2018 (Huachao Mao).
- ISE510, *Advanced Computational Design and Manufacturing* (graduate), 3 unit, Spring 2018. **Instr. Eval.:** 4.83/5.
- ISE590, *M.S. Direct Research*, 1 unit, Fall 2017 (Luyang Liu).
- ISE590, *M.S. Direct Research*, 1 unit, Fall 2017 (Han Xu).
- ISE511L, *Mechatronics Systems Engineering* (graduate), 3 unit, Fall 2017. **Instr. Eval.:** 4.75/5.
- ISE232L, *Manufacturing Processes* (undergraduate), 3 unit, Fall 2017. **Instr. Eval.:** 3.62/5.
- ISE790, *Ph.D. Direct Research*, 1 unit, Spring 2017 (Yang Xu).
- ISE590, *M.S. Direct Research*, 3 unit, Spring 2017 (Jonghan Lim).
- ISE511L, *Mechatronics Systems Engineering* (graduate), 3 unit, Fall 2016. **Instr. Eval.:** 4.0/5.
- ISE232L, *Manufacturing Processes* (undergraduate), 3 unit, Fall 2016. **Instr. Eval.:** 4.08/5.
- ISE511L, *Mechatronics Systems Engineering* (graduate), 3 unit, Spring 2016. **Instr. Eval.:** 4.75/5.
- ISE790, *Ph.D. Direct Research*, 1 unit, Fall 2015 (Jie Jin).
- ISE590, *M.S. Direct Research*, 3 unit, Fall 2015 (Zhuofeng Zhang).
- ISE590, *M.S. Direct Research*, 1 unit, Fall 2015 (Vibha Manvi).
- ISE232L, *Manufacturing Processes* (undergraduate), 3 unit, Fall 2015. **Instr. Eval.:** 3.24/5.
- ISE790, *Ph.D. Direct Research*, 1 unit, Summer 2015 (Huachao Mao).
- ISE590, *M.S. Direct Research*, 2 unit, Spring 2015 (Sibo Wang).
- ISE590, *M.S. Direct Research*, 1 unit, Spring 2015 (Pin-I Wu).
- ISE511L, *Mechatronics Systems Engineering* (graduate), 3 unit, Spring 2015. **Instr. Eval.:** 4.89/5.
- ISE510, *Advanced Computational Design and Manufacturing* (graduate), 3 unit, Spring 2015. **Instr. Eval.:** 4.75/5.
- ISE490, *B.S. Direct Research*, 3 unit, Fall 2014 (Faraz Jalil).
- ISE790, *Ph.D. Direct Research*, 3 unit, Fall 2014 (Kai Xu).
- ISE790, *Ph.D. Direct Research*, 2 unit, Fall 2014 (Pu Huang).
- ISE790, *Ph.D. Direct Research*, 2 unit, Fall 2014 (Xiangjia Li).
- ISE790, *Ph.D. Direct Research*, 3 unit, Fall 2014 (Xuan Song).
- ISE232L, *Manufacturing Processes* (undergraduate), 3 unit, Fall 2014. **Instr. Eval.:** 3.13/5.
- ISE790, *Ph.D. Direct Research*, 3 unit, Spring 2014 (Kai Xu).
- ISE790, *Ph.D. Direct Research*, 2 unit, Spring 2014 (Pu Huang).

- ISE590, *M.S. Direct Research*, 1 unit, Spring 2014 (Xiang Gao).
- ISE599, *Advanced Topics in 3D Printing* (graduate), 3 unit, Fall 2013 (new graduate-level course). **Instr. Eval.:** 4.67/5.
- ISE232L, *Manufacturing Processes* (undergraduate), 3 unit, Fall 2013. **Instr. Eval.:** 3.78/5.
- ISE790, *Ph.D. Direct Research*, 3 unit, Fall 2013 (Yongqiang Li).
- ISE790, *Ph.D. Direct Research*, 3 unit, Fall 2013 (Kai Xu).
- ISE511L, *Mechatronics Systems Engineering* (graduate), 3 unit, Spring 2013. **Instr. Eval.:** 4.0/5.
- ISE790, *Ph.D. Direct Research*, 2 unit, Spring 2013 (Pu Huang).
- ISE510, *Advanced Computational Design and Manufacturing* (graduate), 3 unit, Fall 2012. **Instr. Eval.:** 5/5.
- ISE790, *Ph.D. Direct Research*, 6 unit, Fall 2012 (Yongqiang Li).
- ISE232L, *Manufacturing Processes* (undergraduate), 3 unit, Spring 2012. **Instr. Eval.:** 3.79/5.
- ISE651, *PhD Seminar in Industrial Engineering* (graduate), 1 unit, Spring 2012. **Instr. Eval.:** 4.80/5.
- ISE790, *Ph.D. Direct Research*, 3 unit, Spring 2012 (Xuan Song).
- ISE790, *Ph.D. Direct Research*, 3 unit, Spring 2012 (Yongqiang Li).
- ISE232L, *Manufacturing Processes* (undergraduate), 3 unit, Fall 2011. **Instr. Eval.:** 3.86/5.
- ISE790, *Ph.D. Direct Research*, 3 unit, Fall 2011 (Yayue Pan).
- ISE790, *PhD Direct Research*, 3 unit, Fall 2011 (Kai Xu).
- ISE790, *Ph.D. Direct Research*, 3 unit, Fall 2011 (Yongqiang Li).
- ISE599, *Point-Sampled Geometry for Product Design and Manufacturing* (graduate), 3 unit, Spring 2011 (new graduate-level course. Co-taught with Prof. Charlie Wang from CUHK). **Instr. Eval.:** 4.67/5.
- ISE232L, *Manufacturing Processes* (undergraduate), 3 unit, Spring 2011. **Instr. Eval.:** 3.50/5.
- ISE590, *M.S. Direct Research*, 1 unit, Spring 2011 (Malav Patwa).
- ISE232L, *Manufacturing Processes* (undergraduate), 3 unit, Fall 2010. **Instr. Eval.:** 3.28/5.
- ISE790, *Ph.D. Direct Research*, 2 unit, Fall 2010 (Yayue Pan).
- ISE596, *M.S. Direct Research*, 1 unit, Fall 2010 (Pooja Chawla).
- ISE232L, *Manufacturing Processes* (undergraduate), 3 unit, Spring 2010, **Instr. Eval.:** 4.20/5.
- ISE590, *M.S. Direct Research*, 3 unit, Spring 2010 (Jinho Jung).
- ISE590, *M.S. Direct Research*, 1 unit, Spring 2010 (Jingyuan Lao).
- ISE232L, *Manufacturing Processes* (undergraduate), 3 unit, Fall 2009, **Instr. Eval.:** 2.78/5.

- ISE510, *Advanced Computational Design and Manufacturing* (graduate), 3 unit, Fall 2009 (new graduate-level course offering), **Instr. Eval.:** 4.80/5.
- ISE590, *M.S. Direct Research*, 3 unit, Fall 2009 (Jinho Jung).
- ISE590, *M.S. Direct Research*, 1 unit, Fall 2009 (Jingyuan Lao).
- ISE511, *Computer-aided Manufacturing* (graduate), 3 unit, Spring 2009, **Instr. Eval.:** 4.46/5.
- ISE232L, *Manufacturing Processes* (undergraduate), 3 unit, Fall 2008, **Instr. Eval.:** 4.10/5.
- ISE790, *Ph.D. Direct Research*, 3 unit, Fall 2008 (Chi Zhou).
- ISE232L, *Manufacturing Processes* (undergraduate), 3 unit, Fall 2007, **Instr. Eval.:** 3.52/5.
- ISE650, *PhD Seminar in Industrial Engineering* (graduate), 1 unit, Fall 2007, **Instr. Eval.:** 4.33/5.
- ENGR499, *From Humans to Robots* (undergraduate), 3 unit, Fall 2007 (guest lecture).
- ISE790, *Ph.D. Direct Research*, 1 unit, Summer 2007 (Shanglong Wang).
- ISE650, *PhD Seminar in Industrial Engineering* (graduate), 1 unit, Spring 2007.
- ISE232L, *Manufacturing Processes* (undergraduate), 3 unit, Fall 2006, **Instr. Eval.:** 4.00/5.
- ISE590, *M.S. Direct Research*, 3 unit, Fall 2006 (Kasidit Subsomboon).
- ISE599, *Geometric Modeling and Computation for Digital Fabrication* (graduate), 3 unit, Spring 2006 (*developed* a graduate-level course offering), **Instr. Eval.:** 4.50/5.

RESEARCH SUPERVISION

In Progress:

Post-Doc researcher:

Yang Xu

Ph.D. students:

Hang Xu

Yeowon Yoon

Zhonghao Han

Manqi Li

Yichen Cui

M.S. students:

Charm Nicholas

Youngwoo Lee

Yuchao Shen

Renzhi Hu

Yuxuan Du

B.S. students:

David Magie

Michael Gee

Shuai Chen

Jocelyn Tsai

Completed:

(A total of 5 Ph.D. students and 3 post-doctors trained in our lab landed faculty positions in North American Universities)

Post-doc researchers:

Yizhou Jiang: 01/2021 – 07/2022, landed an Assistant Professor in the Department of Aerospace Engineering at **Embry-Riddle Aeronautical University**, Daytona Beach, FL.

Bin Yao: 09/2020 – 04/2022, landed a Senior Process Engineer at **Applied Materials Inc.,** Sunnyvale, CA.

Laiming Jiang: 12/2019 – 10/2021, landed an Assistant Professor in the College of Materials Science and Engineering at **Sichuan University**, Chengdu, Sichuan, China.

Xiangjia Li: 07/2019 – 1/2020, landed an Assistant Professor in the Department of Mechanical Engineering at **Arizona State University – Tempe**, AZ.

Yang Yang: 03/2016 – 12/2019, landed an Assistant Professor in the Department of Mechanical Engineering at **San Diego State University**, San Diego, CA.

Debbie Leung: 08/2016 – 08/2018, landed a Software Engineer in Angel Technologies, San Francisco, CA.

Tom Kwok: 09/2014 – 08/2016, landed an Assistant Professor in the Department of Mechanical and Industrial Engineering at **Concordia University**, Montreal, Quebec, Canada – ***tenured***.

Ph.D. students:

Yang Xu: Hybrid Vat Photopolymerization Processes for Viscous Photocurable and Non-photocurable Materials, Graduated in Summer 2021 (landed a Post-Doctoral position at USC, Los Angeles, CA).

Jie Jin: Hybrid Vat Photopolymerization: Method and Systems, Graduated in Summer 2020 (landed a Software Engineer in ShadeCraft Robotics Inc., Pasadena, CA).

Huachao Mao: Scalable Polymerization Additive Manufacturing: Principle and Optimization, Graduated in Summer 2019 (landed an Assistant Professor in Polytechnic Institute (Engineering Technology) at **Purdue University - West Lafayette**).

Xiangjia Li: Multi-scale Additive Manufacturing of Biomimetic Functional Materials and Structures, Graduated in Summer 2019 (landed an Assistant Professor in the Department of Mechanical Engineering at **Arizona State University - Tempe**).

Dongping Deng: 4D Printing of Self-folding Structures Using Polystyrene Film, Graduated in Fall 2016 (landed a Software Engineer in Google Inc., CA).

Xuan Song: Slurry based Stereolithography: A Solid Freeform Fabrication Method of Ceramics and Composites, Graduated in Summer 2016 (landed an Assistant Professor in Department of Mechanical and Industrial Engineering at the **University of Iowa – Iowa City**).

Kai Xu: Deformation Control for Mask Image Projection based Stereolithography Process, Graduated in Spring 2016 (co-founded ZSFab Inc., Cambridge, MA).

Yayue Pan: Energy Control and Material Deposition Methods for Fast Fabrication with High Surface Quality in Additive Manufacturing Using Photo-polymerization, Graduated in Summer 2014 (landed an Assistant Professor in Department of Mechanical and Industrial Engineering at the **University at Illinois at Chicago** – ***tenured***).

Yongqiang Li: Deformable Geometry Design with Controlled Mechanical Property based on 3D Printing, Graduated in Summer 2014 (landed a Software Engineer in Microsoft Inc., Seattle, WA).

Chi Zhou: Optimized Mask Image Projection for Large-area based Additive Manufacturing Process, Graduated in Fall 2011 (landed an Assistant Professor in Department of Industrial and Systems Engineering at the **University at Buffalo – State University of New York** – ***tenured***).

MS students:

Over 100 master students worked in our lab in the past 15 years.

B.S. students:

Over 30 undergraduate students worked in our lab in the past 15 years.

Undergraduate/High School Summer Intern:

Steven Li (from University High School - Irvine): Magnetics Assisted Stereolithography, Finished in Summer 2018.

Nicholas Fu (from Oxford Academy High School): Custom-made Teeth Clean Device, Finished in Summer 2015.

Kaline Tong (from Troy High School): Energy Modeling and Control of Micro-Stereolithography, Finished in Summer 2014.

Zaid Badwan (from National Autonomous University of Mexico): PZT Part Fabrication based on an Additive Manufacturing Process, Finished in Summer 2014.

Andrew Davidson (from Brigham Young University): Process Monitoring for Layer Manufacturing Processes, Finished in Summer 2013.

Pu Huang (from Chinese University of Hong Kong): Computation Techniques for Layer Manufacturing Processes, Finished in Summer 2011.

Eun Cheol Yu (from Korean Aerospace University): A Study of Low-cost Rapid Tooling Processes, Finished in Summer 2010.

Brian Lam (from Illinois Institute of Technology): Curing Properties of UV LEDs, Finished in Summer 2008.

Visiting Scholars:

Chengqian Zhang (from Zhejiang University, China): Oct. 2019 – Oct. 2020.

Haidong Wu (from Guangdong University of Technology, China): Oct. 2019 – Oct. 2020.

Ye Yang (from Shanghai Normal University, China): Sept. 2019 – Sept. 2020.

Kuan-Ming Li (from National Taiwan University, Taiwan): September 2019 – February 2020.

Mujun Li (from University of Science and Technology of China): Dec. 2018 – Dec. 2019.

Dan Liu (from Guizhou University, China): August 2018 – August 2019.

Fuyuan Luo (from Nanjing University of Aeronautics and Astronautics, China): April 2016 – April 2017.

Zhengcai Zhao (from Nanjing University of Aeronautics and Astronautics, China): Sept. 2015 – March 2016.

Liwen Lei (from Wuhan University of Technology, China): May 2014 – April 2015.

Zuyao Yu (from Huazhong Univ. of Science and Technology, China): Dec. 2012 – Aug. 2013.

Pekka Lehtinen (from Aalto University, Finland): September 2013 – November 2013.

Ruisong Jiang (from Northwestern Polytechnical University): Nov. 2012 – Nov. 2013.

Xuejin Zhao (from Shandong University, China): December 2010 – August 2012.

Jouni Partanen (from Aalto University, Finland): June 2012 – July 2012.

Charlie Wang (from Chinese University of Hong Kong): December 2010 – August 2011.

Jouni Partanen (from Aalto University, Finland): June 2011 – July 2011.

Weiqing Guo (from Zhejiang University of Technology, China): March 2010 – April 2011.

Shoudong Ni (from Nanjing University of Technology, China): February 2007 – June 2007.

DISSERTATION COMMITTEE

Dissertation Defense

- Christina Schmidleithner, Ph.D. Dissertation: *3D Printed Microdevices for Advanced Tissue Culture*, Health Technology, Technical University of Denmark (DTU), June 2022 (Assessment Committee Member).
- Haochen Kang, Ph.D. Dissertation: *2D Ultrasonic Transducer Array's Design and Fabrication with 3D Printed Interposer and Applications*, Biomedical Engineering, USC, May 2022.
- Yuanxiang Wang, Ph.D. Dissertation: *Fabrication-aware Machine Learning for Accuracy Control in Additive Manufacturing*, Industrial and Systems Engineering, USC, May 2022.

- Kun-Hao Yu, Ph.D. Dissertation: *Mechanics and Additive Manufacturing of Bio-inspired Polymers*, Civil and Environmental Engineering, USC, May 2022.
- Rishi Malhan, Ph.D. Dissertation: *Robot Placement and Trajectory Generation Under Motion Constraints*, Aerospace and Mechanical Engineering, USC, April 2022.
- Nathan Decker, Ph.D. Dissertation: *Machine Learning-driven Deformation Prediction and Compensation for Additive Manufacturing*, Industrial and Systems Engineering, USC, March 2022.
- Prahar M. Bhatt, Ph.D. Dissertation: *Process Planning for Robotic Additive Manufacturing*, Aerospace and Mechanical Engineering, USC, November 2021.
- Danyong Zhao, Ph.D. Dissertation: *Acquisition of Human Tissue Elasticity Properties Using Pressure Sensors*, Computer Science, USC, October 2021.
- Yang Xu, Ph.D. Dissertation: *Hybrid Vat Photopolymerization Processes for Viscous Photocurable and Non-photocurable Materials*, Industrial and Systems Engineering, USC, July 2021.
- Ke Xu, Ph.D. Dissertation: *Neuromorphic Mechanical Computation for Decentralized Control of Soft Fluidic Robots*, Aerospace and Mechanical Engineering, USC, June 2021.
- An Xin, Ph.D. Dissertation: *Harness Microorganisms to Design Resilient Engineering Materials*, Civil and Environmental Engineering, USC, May 2021.
- Jie Jin, Ph.D. Dissertation: *Hybrid Vat Photopolymerization: Methods and Systems*, Industrial and Systems Engineering, USC, July 2020.
- Ariel Calderon, Ph.D. Dissertation: *Novel Soft and Micro Transducers for Creating Biologically-inspired Robots*, Aerospace and Mechanical Engineering, USC, May 2020.
- Xiufeng Yang, Ph.D. Dissertation: *Development of Biologically-inspired Sub-germ Insect-scale Autonomous Robots*, Aerospace and Mechanical Engineering, USC, January 2020.
- Xiangjia Li, Ph.D. Dissertation: *Multi-scale Additive Manufacturing of Biomimetic Functional Materials and Structures*, Industrial and Systems Engineering, USC, June 2019.
- Huachao Mao, Ph.D. Dissertation: *Scalable Polymerization Additive Manufacturing: Principle and Optimization*, Industrial and Systems Engineering, USC, June 2019.
- Yuanrui Li, Ph.D. Dissertation: *Metasurfaces in 3D Applications: Multiscale Stereolithography and Inverse Design for Structural Light*, Electrical and Computer Engineering, USC, May 2019.
- Xiang Gao, Ph.D. Dissertation: *Selective Separation Shaping (SSS) – Large Scale Fabrication Potential*, Industrial and Systems Engineering, USC, January 2019.
- Hadis Nouri, Ph.D. Dissertation: *3D printing of Polymer Parts Using Selective Separation Shaping (SSS)*, Industrial and Systems Engineering, USC, July 2018.
- Ali Kazemian, Ph.D. Dissertation: *Mixture Characterization and Real-time Extrusion Quality Monitoring for Construction-scale 3D Printing (Contour Crafting)*, Civil Engineering, USC, July 2018.
- He Luan, Ph.D. Dissertation: *Statistical Modeling and Machine Learning for Shape Accuracy Control in Advanced Manufacturing*, Industrial and Systems Engineering, USC, May 2018.

- Chu-Yi Wang, Ph.D. Dissertation: *Managing Functional Coupling Sequences to Reduce Complexity and Increase Modularity in Conceptual Design*, Aerospace and Mechanical Engineering, USC, April 2018.
- Yanqing Duanmu, Ph.D. Dissertation: *Some Scale-up Methodologies for Advanced Manufacturing*, Industrial and Systems Engineering, USC, May 2017.
- Hongyi Xu, Ph.D. Dissertation: *Interactive Material and Damping Design*, Computer Science, USC, April 2017.
- Dongping Deng, Ph.D. Dissertation: *4D Printing of Self-folding Structures Using Polystyrene Film*, Industrial and Systems Engineering, USC, December 2016.
- Xiao Yuan, Ph.D. Dissertation: *Contour Crafting Construction with Sulfur Concrete*, Industrial and Systems Engineering, USC, June 2016.
- Amir Mansouri, Ph.D. Dissertation: *Analyses of Strength of Layered Structures Fabricated by Contour Crafting*, Industrial and Systems Engineering, USC, June 2016.
- Xuan Song, Ph.D. Dissertation: *Slurry based Stereolithography: A Solid Freeform Fabrication Method of Ceramics and Composites*, Industrial and Systems Engineering, USC, June 2016.
- Payman Torabi, Ph.D. Dissertation: *Enhancing the Surface Quality and Dimensional Accuracy of SIS-Metal Parts with Applications to High-Temperature Alloys*, Industrial and Systems Engineering, USC, June 2016.
- Matthew R. Petros, Ph.D. Dissertation: *The Extension of Selective Inhibition Sintering (SIS) to High-Temperature Alloys*, Industrial and Systems Engineering, USC, May 2016.
- Jing Zhang, Ph.D. Dissertation: *Selective Separation Shaping – An Additive Manufacturing Method for Metals and Ceramics*, Industrial and Systems Engineering, USC, May 2016.
- Kai Xu, Ph.D. Dissertation: *Deformation Control for Mask Image Projection based Stereolithography Process*, Industrial and Systems Engineering, USC, January 2016.
- Krisna C. Bhargava, Ph.D. Dissertation: *A Modular Microscale Laboratory*, Chemical Engineering and Materials Science, USC, December 2015.
- Yayue Pan, Ph.D. Dissertation: *Energy Control and Material Deposition Methods for Fast Fabrication with High Surface Quality in Additive Manufacturing Using Photo-polymerization*, Industrial and Systems Engineering, USC, May 2014.
- Yongqiang Li, Ph.D. Dissertation: *Deformable Geometry Design with Controlled Mechanical Property based on 3D Printing*, Industrial and Systems Engineering, USC, May 2014.
- Ruimin Chen, Ph.D. Dissertation: *High-frequency Ultrasonic Transducers for Photoacoustic Applications*, Biomedical Engineering, USC, December 2013.
- Li Wang, Ph.D. Dissertation: *Modeling and Analysis of Nanostructure Growth Process Kinetics and Variations for Scalable Nanomanufacturing*, Industrial and Systems Engineering, USC, October 2013.
- Lijuan Xu, Ph.D. Dissertation: *Nanostructure Interaction Modeling and Estimation for Scalable Nanomanufacturing*, Industrial and Systems Engineering, USC, October 2013.

- Tony Di Carlo, Ph.D. Dissertation: *Experimental and Numerical Techniques to Characterize Structural Properties of Fresh Concrete Relevant to Contour Crafting*, Industrial and Systems Engineering, USC, September 2012.
- Mahdi Yoozbashizadeh, Ph.D. Dissertation: *Metallic Parts Fabrication with the Selective Inhibition Sintering (SIS) based on Microscopic Inhibition*, Industrial and Systems Engineering, USC, August 2012.
- Winston Wen Chiang, Ph.D. Dissertation: *A Meta-interaction Model for Designing Cellular Self-Organizing Systems*, Aerospace and Mechanical Engineering, USC, April 2012.
- Hojong Choi, Ph.D. Dissertation: *Development of Front-End Circuits for High-Frequency Ultrasonic System*, Electric Engineering, USC, November 2011.
- Chi Zhou, Ph.D. Dissertation: *Optimized Mask Image Projection for Large-Area based Additive Manufacturing Process*, Industrial and Systems Engineering, USC, August 2011.
- Hamid R. Chabok, Ph.D. Dissertation: *Development of High-Frequency 1-3 Composite Annular Array Ultrasound Transducers*, Industrial and Systems Engineering, USC, March 2011.
- Majid Yahyaei, Ph.D. Dissertation: *Modeling Enterprise Operations and Organizations for Productivity Improvement*, Aerospace and Mechanical Engineering, USC, Dec. 2009.
- Dawei Wu, Ph.D. Dissertation: *Development of High-Frequency (~100MHZ) PZT Thick-Film Ultrasound Transducers and Arrays*, Biomedical Engineering, USC, July 2009.
- Khashayar Behdinan, Ph.D. Dissertation: *Methodology for Design of a Vibration Operated Valve for Abrasive Viscous Fluids*, Industrial and Systems Engineering, USC, March 2009.
- Jing Zhang, Ph.D. Dissertation: *Contour Crafting Process Planning and Optimization*, Industrial and Systems Engineering, USC, Feb. 2009.
- George E. Zouein, Ph.D. Dissertation: *A Biologically Inspired DNA-based Cellular Approach to Developing Complex Adaptive Systems*, Aerospace and Mechanical Engineering, USC, January 2009.

Proposal Defense

- Han Xu, Ph.D. Dissertation: *Mask Shifting in Projection-based Vat Photopolymerization for Sub-pixel Resolution and Layerless Fabrication*, Industrial and Systems Engineering, USC, March 2022.
- Yuanxiang Wang, Ph.D. Dissertation: *Shape Deformation Prediction Through a Convolution Learning Framework for Additive Manufacturing*, Industrial and Systems Engineering, USC, May 2021.
- Nathan Decker, Ph.D. Dissertation: *Data-driven Deformation Characterization, Prediction, and Compensation for Additive Manufacturing*, Industrial and Systems Engineering, USC, May 2021.
- Haochen Kang, Ph.D. Dissertation: *2D Ultrasonic Transducer Array's Fabrication with 3D Printed Interposer and Its Application in Elastography*, Biomedical Engineering, USC, May 2021.
- Rishi Malhan, Ph.D. Dissertation: *Robot Placement and Trajectory Generation Under Motion Constraints*, Aerospace and Mechanical Engineering, USC, April 2021.
- Prahar M. Bhatt, Ph.D. Dissertation: *Process Planning for Robotic Additive Manufacturing*, Aerospace and Mechanical Engineering, USC, December 2020.

- Yang Xu, Ph.D. Dissertation: *A Multi-material Vat Photopolymerization Process for Viscous and Non-photocurable Materials*, Industrial and Systems Engineering, USC, August 2020.
- Kun-Hao Yu, Ph.D. Dissertation: *Mechanics and Additive Manufacturing of Self-healing Polymers*, Civil and Environmental Engineering, USC, March 2020.
- Michael Kruger, Ph.D. Dissertation: *The Challenges and Potential Benefits of Electric Propulsion for Aircraft*, Aerospace and Mechanical Engineering, USC, March 2020.
- An Xin, Ph.D. Dissertation: *Bacteria Assisted Remodeling of Engineering Materials*, Civil and Environmental Engineering, USC, February 2020.
- Bohan Wang, Ph.D. Dissertation: *Anatomically based Hand Modeling*, Computer Science, USC, November 2019.
- Shantanu Thakar, Ph.D. Dissertation: *Planning and Learning for Mobile Manipulation*, Aerospace and Mechanical Engineering, USC, August 2019.
- Ariel Calderon, Ph.D. Dissertation: *Design and Synthesis of Hybrid Soft-Micro Transducers for Bio-inspired Robots*, Aerospace and Mechanical Engineering, USC, June 2019.
- Jie Jin, Ph.D. Dissertation: *Hybrid 3D Printing for Stereolithography*, Industrial and Systems Engineering, USC, May 2019.
- Danyong Zhao, Ph.D. Dissertation: *Acquisition of Human Tissue Elasticity Properties Using Pressure Sensors*, Computer Science, USC, May 2019.
- Jiachuan Chen, Ph.D. Dissertation: *The Warehouse Traveling Salesman Problem*, Industrial and Systems Engineering, USC, January 2019.
- Yuanrui Li, Ph.D. Dissertation: *Multiscale Stereolithography and Nonlinear Metamaterial Over Multiple Wavelength Ranges*, Electrical Engineering, USC, June 2018.
- Ariyan M. Kabir, Ph.D. Dissertation: *Trajectory Planning and Self-directed Learning for High Degrees of Freedom Robotic Systems*, Aerospace and Mechanical Engineering, USC, June 2018.
- Huachao Mao, Ph.D. Dissertation: *Energy Control and Process Planning for Multiscale Stereolithography*, Industrial and Systems Engineering, USC, May 2018.
- Xiangjia Li, Ph.D. Dissertation: *Multi-scale Additive Manufacturing of Biomimetic Functional Materials and Structures*, Industrial and Systems Engineering, USC, May 2018.
- Xiang Gao, Ph.D. Dissertation: *Selective Separation Shaping (SSS) – Large Scale Fabrication Potentials*, Industrial and Systems Engineering, USC, Feb. 2018.
- Yiming Li, Ph.D. Dissertation: *Artist-controlled Physically based Animation*, Computer Science, USC, May 2017.
- Hadis Nouri, Ph.D. Dissertation: *Selective Separation Shaping of Polymeric Parts*, Industrial and Systems Engineering, USC, May 2017.
- He Luan, Ph.D. Dissertation: *Prescriptive Shape Deformation Modeling and Monitoring for Additive Manufacturing*, Industrial and Systems Engineering, USC, May 2017.

- Edwin Ordoukhanian, Ph.D. Dissertation: *A Methodology for Introducing and Evaluating Resilience Mechanisms in System-of-Systems: Application to Multi-UAV SoS*, Astronautical Engineering, USC, January 2017.
- Zeyu Chen, Ph.D. Dissertation: *Additive Manufacturing of Composites for Biomedical Application*, Biomedical Engineering, USC, November 2016.
- Hongyi Xu, Ph.D. Dissertation: *Interactive Material and Damping Design*, Computer Science, USC, November 2016.
- Chu-Yi Wang, Ph.D. Dissertation: *Managing Functional Coupling Sequences to Reduce Design Complexity During Concept Improvements*, Aerospace and Mechanical Engineering, USC, August 2016.
- Yuan Jin, Ph.D. Dissertation: *Accuracy Control of Three-Dimensional Shape Deformation in Additive Manufacturing*, Chemical Engineering, USC, December 2015.
- Xiao Yuan, Ph.D. Dissertation: *Contour Crafting Construction with Sulfur Concrete*, ISE, USC, September 2015.
- Dongping Deng, Ph.D. Dissertation: *Freeform 3D Shell Structure Fabrication Using 3D Printed Constraint-based Self-foldable Structures*, ISE, USC, September 2015.
- Amir Mansouri, Ph.D. Dissertation: *Analysis of Strength of Layered Structures Fabricated by Contour Crafting*, ISE, USC, May 2015.
- Matthew Petros, Ph.D. Dissertation: *Enhancing the Mechanical Properties of SIS-Metal Parts*, ISE, USC, May 2015.
- Xuan Song, Ph.D. Dissertation: *Composite Fabrication Using Mask-image Projection based Stereolithography*, ISE, USC, April 2015.
- Payman Torabi, Ph.D. Dissertation: *Enhancing the Surface Quality and Dimensional Accuracy of SIS-Metal Parts*, ISE, USC, April 2015.
- Kai Xu, Ph.D. Dissertation: *Deformation Control for Mask Image Projection Based Stereolithography Process*, ISE, USC, January 2015.
- Jing Zhang, Ph.D. Dissertation: *Study of Principles of Selective Separation Sintering (SSS)*, ISE, USC, January 2015.
- Yongqiang Li, Ph.D. Dissertation: *Desired Flexible Skin Design For 3D Printing*, ISE, USC, December 2013.
- Yayue Pan, Ph.D. Dissertation: *Energy Control and Material Deposition methods for Multi-scale Additive Manufacturing Using Photo-polymerization*, ISE, USC, August 2013.
- Ruimin Chen, Ph.D. Dissertation: *High-frequency Ultrasonic Transducers for Photoacoustic Applications*, BME, USC, December 2012.
- Hojong Choi, Ph.D. Dissertation: *Development of Front-End Integrated Preamplifier for High-Frequency Ultrasonic Transducer*, EE, USC, October 2010.
- Hamid R. Chabok, Ph.D. Dissertation: *Development of High-Frequency 1-3 Composite Annular Array Ultrasound Transducers*, ISE, USC, May 2010.

- Chi Zhou, Ph.D. Dissertation: *Optimized Mask Image Projection for Large-Area based Additive Manufacturing Process*, ISE, USC, September 2010.
- Tony Di Carlo, Ph.D. Dissertation: *Modeling and Optimization of a Cementitious Material System for Automated Construction of Sustainable and Affordable Homes*, ISE, USC, August 2010.
- Mahdi Yoozbashizadeh, Ph.D. Dissertation: *Metallic Parts Fabrication with the Selective Inhibition Sintering (SIS) based on Microscopic Inhibition*, ISE, USC, January 2010.
- Hamid R. Chabok, Ph.D. Dissertation: *Development of High-Frequency 1-3 Composite Annular Array Ultrasound Transducers*, ISE, USC, November 2009.
- Kathryn R. Rieger, Ph.D. Dissertation: *A Performance-based Bayesian Model to Identify Use-Error Risk Levels in Medical Devices*, ISE, USC, May 2009.
- Majid Yahyaei, Ph.D. Dissertation: *Process Management Technology (PMT): Modeling Enterprise Operations and Organizations*, AME, USC, Dec. 2008.
- Khashayar Behdinan, Ph.D. Dissertation: *Analysis of a Piezoelectric Operated Valve for Abrasive Viscous Fluids*, ISE, USC, Jan. 2008.
- Jing Zhang, Ph.D. Dissertation: *Contour Crafting Process Planning and Optimization*, ISE, USC, Dec. 2007.
- Haifeng Ji, Ph.D. Dissertation: *Extraction of Preferences from Early Stage Engineering Design Team Discussion*, ISE, USC, May 2007.
- Gregory Placencia, Ph.D. Dissertation: *A Finite Element Model of Haptic Tactile Response*, ISE, USC, Dec. 2006.

MS THESIS COMMITTEE:

- Yushun Zeng, M.S. Thesis: *Fabrication of Ultrasound Transducer and 3D-printing Ultrasonic Device*, Biomedical Engineering, USC, March, 2021.
- John Pham, M.S. Thesis: *Monitoring of Typodont Root Movement via Crown Superimposition of Single CBCT and Consecutive iTero Scans*, Orthodontics program, School of Dentistry, USC, January, 2014.
- Kabir Kanodia, M.S. Thesis: *Real-time Flow Control of Viscous Fluids Using 3D Image Processing*, Industrial and Systems Engineering, USC, Aug. 2008.

SERVICE

PROFESSIONAL AFFILIATIONS

Fellow of American Society of Mechanical Engineers (ASME), since 2018

Senior Member of National Academy of Inventors (NAI), since 2022

Senior member of Society of Manufacturing Engineers (SME), since 2006

Member of American Association for Advancement of Society (AAAS), since 2022

Member of Institute of Industrial Engineers (IIE), 2006 - 2021

Member of American Society of Engineering Education (ASEE), 2011 - 2016

Member of Solid Modeling Association (SMA), since 2006

Member of Chinese American Faculty Association (CAFA)

PROFESSIONAL ACTIVITIES

ASME CIE Division

Senate, Computer-aided Product and Process Development (CAPPD) Committee, 2010-2013.

Chair, Computer-aided Product and Process Development (CAPPD) Committee, 2008.

Vice Chair, Computer-aided Product Development (CAPD) Committee, 2007.

Secretary, Computer-aided Product Development (CAPD) Committee, 2006.

SME North American Manufacturing Research Institute

Member, Scientific Committee, 2012-2016.

NSF Roadmap for Additive Manufacturing Workshop

Invited participant, NSF, CMMI Division, March 2009.

JOURNAL SERVICE

Editorial Board Member, January 2022 – December 2024, International Journal of Extreme Manufacturing.

Editorial Board Member, July 2019 – Current, Manufacturing Letters.

Editorial Board Member, February 2019 – Current, Journal of Intelligent Manufacturing.

Editorial Board Member, January 2019 – Current, Bio-Design and Manufacturing.

Editorial Board Member, March 2016 – Current, Virtual and Physical Prototyping Journal.

Associate Editor, Nov. 2016 – Nov. 2022, ASME Journal of Computing and Information Science in Engineering (JCISE).

Associate Editor, Aug. 2018 – July 2021, IISE Transaction – Design and Manufacturing Focus Issue.

Editorial Board Member, April 2015 – Current, International Journal of Rapid Manufacturing.

Editorial Board Member, Dec. 2014 – Current, Computer-aided Design.

Guest Editor, Computer-aided Design, Special Issue on "Geometric and Physical Modeling for Additive Manufacturing," 2014.

Editorial Board Member, 2012-current, International Journal of Precision Engineering and Manufacturing.

CONFERENCE SERVICE

Program Chair, 2022 ASME Manufacturing Science and Engineering Conferences (MSEC), June 27-July 1, West Lafayette, Indiana.

Symposium co-Chair, 2022 MSEC Doctoral Symposium, June 27-July 1, West Lafayette, Indiana.

Track co-Chair, 2022 MSEC Poster Track, June 27-July 1, West Lafayette, Indiana.

Symposium organizer, Symposium of Machine Learning and Generative Design for Additive Manufacturing, Mechanistic Machine Learning and Digital Twins for Computational Science, Engineering and Technology (MMLDT-CSET) Conference, San Diego, California, Sept. 26-29, 2021.

Symposium Chair, 2021 MSEC Doctoral Symposium, June 22-25, Virtual conference hosted by the University of Cincinnati.

Track Chair, 2021 MSEC Poster Track, June 22-25, Virtual conference hosted by the University of Cincinnati.

Program co-Chair, 2021 ASME Manufacturing Science and Engineering Conferences (MSEC), June 22-25, Virtual conference hosted by the University of Cincinnati.

Program Committee Member, 2019 Symposium on Solid and Physical Modeling (SPM 2019), Vancouver, Canada, June 17-19, 2019.

Program co-Chair, 2019 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference (IDETC/CIE), August 18-21, Anaheim, California.

Member of Program Committee, 2018 International Symposium on Flexible Automation (ISFA), Kanazawa, Japan, July 15-19, 2018.

Conference Chair, 2017 International Manufacturing Research Conference (NAMRC/MSEC/ICM&P), Los Angeles, California, June 4-8, 2017.

Member of Program Committee, 2016 International Symposium on Flexible Automation (ISFA), Cleveland, Ohio, August 1-3, 2016.

Program Committee Member, 2016 Symposium on Solid and Physical Modeling (SPM 2016), Berlin, Germany, June 20-24, 2016.

Program Committee Member, 2015 SIAM/GD – SPM Conference on Geometric and Physical Modeling, Salt Lake City, Utah, October 12-14, 2015.

Conference Program Chair, 2014 International Conference on Innovative Design and Manufacturing (ICIDM), Montreal, QC, Canada, August 13-15, 2014.

Member of Program Committee, 2014 International Symposium on Flexible Automation (ISFA), Hyogo, Japan, July 14-16, 2014.

Tutorial Speaker, Computer-aided Design Tools for Additive Manufacturing, Tenth International Symposium on Tools and Methods of Competitive Engineering (TMCE), Budapest, Hungary, May 19, 2014.

Symposium Organizer, Integrated Product and Process Development Processes, 18th ASME Design for Manufacturing and the Life Cycle Conference, Portland, Oregon, August 2013.

Seminar Speaker, Advanced Manufacturing Seminars, 2013 Pacific Design and Manufacturing Show, Anaheim, California, February 13, 2013.

Member of Organization Committee, 2012 International Conferences on Innovative Design and Manufacturing (ICIDM), Taipei, Taiwan, Dec. 12-14, 2012.

Member of Program Committee, 2012 Symposium on Solid and Physical Modeling (SPM), Dijon, France, Oct. 29-31, 2012.

Member of Program Committee, 2012 International Symposium on Flexible Automation (ISFA), St. Louis, MO, June 19-20, 2012.

Conference Program Chairman, International Conference on Manufacturing Automation (ICMA) Hong Kong, China, December, 2010.

Symposium Organizer, Sampling-based Geometric Modeling and Computing (CIE-14), 30th ASME Computers and Information in Engineering Conference, Montreal, Quebec, Canada, August 2010.

Symposium Co-Organizer, Computer-aided Product and Process Development Symposium, 30th ASME Computers and Information in Engineering Conference, Montreal, Quebec, Canada, August 2010.

Symposium Co-Organizer, Computer-aided Product and Process Development Symposium, 29th ASME Computers and Information in Engineering Conference, San Diego, CA, August 2009.

Symposium Co-Organizer, Computer-aided Product Development Symposium, 28th ASME Computers and Information in Engineering Conference, Brooklyn, NY, August 2008.

Symposium Co-Organizer, Computer-aided Product Development Symposium, 27th ASME Computers and Information in Engineering Conference, Las Vegas, Nevada, August 2007.

CONFERENCE SESSION ORGANIZED

Session Chair, Session Modeling, Symposium on Solid and Physical Modeling, Vancouver, Canada, June 18, 2019.

Session Chair, Session CIE-8-3: Materials Modeling and Process Quality, ASME 2018 Computers and Information in Engineering Conference (CIE), Quebec City, Canada, August 28, 2018.

Session Chair, Session OS1-1: Additive Manufacturing Sensing and Control I, International Symposium on Flexible Automation, Kanazawa, Japan, July 16, 2018.

Session Chair, Track 3 Additive Manufacturing – Mechanical Resistance, 46th North American Manufacturing Research Conference (NAMRC), College Station, Texas, June 20, 2018.

Session Chair, Session M-06, Symposium M – Additive Manufacturing for Fabrication of Advanced Materials/Devices, 9th International Conference on Materials for Advanced Technologies (ICMAT), Singapore, June 21, 2017.

Session Chair, Session 10: Additive Manufacturing (II), 2017 World Congress on Micro and Nano Manufacturing, Kaohsiung, Taiwan, March 29, 2017.

Session Chair, Session Process Development VII: Monitoring and Controls II, 28th International Solid Freeform Fabrication (SFF) Symposium, Austin, Texas, August 10, 2016.

Session Chair, Session T2: Flexible Automation in Manufacturing Systems II, International Symposium on Flexible Automation, Cleveland, Ohio, August 2, 2016.

Session Chair, Session MS13: Geometric Modeling and Processing in Additive Manufacturing, SIAM Conference on Geometric and Physical Modeling (GD/SPM15), Salt Lake City, UT, October 14,

2015.

Session Co-Chair, Session 2-7: Electrohydrodynamic Jet Printing, MSEC 2015 ASME International Manufacturing Science and Engineering Conference (MSEC), Charlotte, NC, June 11, 2015.

Session Chair, Session 2: Design for Additive Manufacturing, 43rd North American Manufacturing Research Conference (NAMRC), Charlotte, North Carolina, June 9, 2015.

Session Chair, Session *Process Modeling*, 2014 International Conference on Innovative Design and Manufacturing (ICIDM), Montreal, QC, Canada, August 15, 2014.

Session Chair, Session Modeling III – Thermal Effects, 25th Solid Freeform Fabrication Symposium, Austin, Texas, August 6, 2013.

Review Co-Coordinator, Design for Additive Manufacturing, ASME 2014 Design for Manufacturing and the Life Cycle Conference, Buffalo, NY, August 17-20, 2014.

Session Chair, Session Academic Workshop on Cloud Manufacturing and Cyber-physical Products, 10th International Symposium on Tools and Methods of Competitive Engineering (TMCE 2014), Budapest, Hungary, May 20, 2014.

Session Chair, Session 26B4: Additive Manufacturing, International Conference on MicroManufacturing (ICOMM) 2014, Singapore, March 26, 2014.

Session Chair, Session 2-1-3 Additive Manufacturing Process Development I, International Mechanical Engineering Congress & Exposition (IMECE) 2013, San Diego, CA, Nov. 17, 2013.

Session Chair, Session Process Development II, 24th Solid Freeform Fabrication Symposium, Austin, Texas, August 13, 2013.

Session Chair, Session 20 Additive Manufacturing, International Conference on MicroManufacturing (ICOMM) 2013, Victoria, Canada, March 27, 2013.

Session Chair, Session *CAD/CAM-2*, 2012 International Symposium on Flexible Automation, St. Louis, MO, June 19, 2012.

Session Co-Chair, Session *Application of Additive Manufacturing*, 2012 International Symposium on Flexible Automation, St. Louis, MO, June 18, 2012.

Track Co-Organizer, Computer-aided Design and Manufacturing, 2012 International Symposium on Flexible Automation, St. Louis, MO, June 18-20, 2012.

Session Chair, Session 10: Rapid Prototyping, 40th North American Manufacturing Research Conference (NAMRC), Notre Dame, Indiana, June 1, 2012.

Session Co-Chair, Session 1-2-2 *Layered Manufacturing*, ASME International Manufacturing Science and Engineering Conference, Notre Dame, Indiana, June 5, 2012.

Review Co-Coordinator and Special Session Organizer, Geometry in Design, 37th ASME Computers and Information in Engineering Conference, Washington DC, USA (2011).

Review Co-Coordinator, Direct Digital Manufacturing, 37th ASME Design Automation Conference, Washington DC, USA (2011).

Session Chair, Session 1-6: Additive and Polymer manufacturing, 39th North American Manufacturing Research Conference (NAMRC), Corvallis, Oregon, June 15, 2011.

Session Chair, Session 4B Computer-aided Manufacturing I, International Conference on

Manufacturing Automation (ICMA) 2010, Hong Kong, China (2010).

Session Chair, Session 5B Computer-aided Manufacturing II, International Conference on Manufacturing Automation (ICMA) 2010, Hong Kong, China (2010).

Review Coordinator and Special Session Organizer, Direct Digital Manufacturing (Topic), 36th ASME Design Automation Conference, Montreal, Quebec, Canada (2010).

Session Chair, Session CIE-9-3 *Geometric Modeling, Analysis and Optimization*, 30th ASME Computers and Information in Engineering Conference, Montreal, Quebec, Canada (2010).

Session Chair, Session CIE-14-1 *Sampling based Geometric Modeling and Computing*, 30th ASME Computers and Information in Engineering Conference, Montreal, Quebec, Canada (2010).

Session Co-Chair, Session DAC-15-1 *Direct Digital Manufacturing*, 36th ASME Design Automation Conference, Montreal, Quebec, Canada (2010).

Review Co-Coordinator, Direct Digital Manufacturing (Topic), 35th ASME Design Automation Conference, San Diego, CA (2009).

Session Chair, Session CIE-10-3 *Computers and Knowledge Management*, 29th ASME Computers and Information in Engineering Conference, San Diego, CA (2009).

Session Co-Chair, Session DAC-18-1 *Direct Digital Manufacturing*, 35th ASME Design Automation Conference, San Diego, CA (2009).

Review Co-Coordinator, Direct Digital Manufacturing (Topic), 34th ASME Design Automation Conference, Brooklyn, NY (2008).

Session Chair, Session CIE-3-2 *Features and Solid Modeling*, 28th ASME Computers and Information in Engineering Conference, Brooklyn, NY (2008).

Session Co-Chair, Session DAC-13-1 *Direct Digital Manufacturing*, 34th ASME Design Automation Conference, Brooklyn, NY (2008).

Session Co-Chair, Session CIE-12-1 *Optimal Product Design*, 28th ASME Computers and Information in Engineering Conference, Brooklyn, NY (2008).

Session Co-Chair, Session CIE-3-5 *Object Visualization and Manipulation*, 27th ASME Computers and Information in Engineering Conference, Las Vegas, Nevada (2007).

Session Co-Chair, Session CIE-4-2 *Geometric Analysis in Simulation-based Design*, 26th ASME Computers and Information in Engineering Conference, Philadelphia, PA (2006).

Session Co-chair, Session CIE-3-10 *Solid Modeling Applications*, 25th ASME Computers and Information in Engineering Conference, Long Beach, California (2005).

GRANT PROPOSAL REVIEW

Panel Reviewer, National Science Foundation (NSF), CMMI Division, 2021.

Panel Reviewer, National Science Foundation (NSF), CMMI Division, 2020.

Panel Reviewer, National Science Foundation (NSF), CMMI Division, 2019.

Panel Reviewer, National Science Foundation (NSF), CMMI Division, 2018.

Panel Reviewer, National Science Foundation (NSF), CMMI Division, 2017.

Panel Reviewer, National Science Foundation (NSF), IIP Division, 2015.

External Reviewer, Natural Science and Engineering Research Council of Canada, 2015.

Panel Reviewer, National Science Foundation (NSF), EEC Division, 2013.

Panel Reviewer, National Science Foundation (NSF), IIP Division, 2013.

Panel Reviewer, National Science Foundation (NSF), IIP Division, 2012.

Panel Reviewer, National Science Foundation (NSF), CMMI Division, 2012.

Panel Reviewer, Zumberge Faculty Research & Innovation Fund, 2012.

Panel Reviewer, Zumberge Faculty Research & Innovation Fund, 2011.

Panel Reviewer, National Science Foundation (NSF), CMMI Division, 2010.

Panel Reviewer, Zumberge Faculty Research & Innovation Fund, 2010.

Panel Reviewer, National Science Foundation (NSF), CMMI Division, 2009.

Panel Reviewer, Zumberge Faculty Research & Innovation Fund, 2009.

Panel Reviewer, National Science Foundation (NSF), CMMI Division, 2008.

Panel Reviewer, National Science Foundation (NSF), CMMI Division, 2007.

PAPER REVIEW

Journal and Conference Proceedings Reviewer

Additive Manufacturing
Advanced Materials
Advanced Functional Materials
AI in Engineering Design, Analysis and Manufacturing
ASME - Journal of Computing and Information Science in Engineering
ASME - Journal of Mechanical Design
ASME - Journal of Manufacturing Science and Engineering
ASME - Journal of Micro and Nano-Manufacturing
ASME - Journal of Mechanisms and Robotics
Bioinspiration & Biomimetics
Computer-aided Design
Computer-aided Design and Application
Computer in Industry
Engineering
Frontiers of Mechanical Engineering
IIE Transactions
IEEE – Transactions on Industrial Informatics
IEEE – Transactions on Automation Science and Engineering
IEEE – Transactions on Ultrasonics, Ferroelectrics, and Frequency Control
IEEE – Transactions on Visualization and Computed Graphics

Integrated Computer-aided Engineering
International Journal of Advanced Manufacturing Technology
International Journal of Precision Engineering and Manufacturing
International Journal of Computer Integrated Manufacturing
International Journal of Computer Aided Engineering and Technology
Journal of Additive Manufacturing
Journal of Mechanical Engineering Science
Journal of Materials Processing Technology
Journal of Reinforced Plastics and Composites
Materials Science and Engineering
Matter
Nature Communications
Science Advances
SME - Journal of Manufacturing Systems
SME - Journal of Manufacturing Processes
Structural and Multidisciplinary Optimization
Rapid Prototyping Journal
Virtual and Physical Prototyping

Conference Proceedings Reviewer

CAD Conference and Exhibition
Solid Freeform Fabrication Symposium
SME NAMRC Conference
ASME - DETC Conferences
ASME - IMECE Conference
International Conference on MicroManufacturing
Euro-Graphics
ACM SIGGraph
International Symposia on Tools and Methods of Competitive Engineering
Symposium on Solid and Physical Modeling

CONFERENCE POSTER REVIEW

Graduate Student Poster Competition Reviewer, 30th ASME Computers and Information in Engineering Conference, Montreal, Quebec, Canada (2010).

Graduate Student Poster Competition Reviewer, 29th ASME Computers and Information in Engineering Conference, San Diego, California (2009).

BOOK REVIEW

1 book by Elsevier publisher, 2009

INSTITUTIONAL SERVICES

University of Southern California – Department of Industrial & Systems Engineering:

Member – Design and Manufacturing Faculty Search Committee, 2021.
Chair – Department Space Planning Committee, 2020.
Chair – Department Research Restart Committee, 2020.
Member – Ph.D. Admission Committee, 2020.
Member – Research Space Review Committee, 2019.
Member – Ph.D. Admission Committee, 2019.
Member – Department Chair Nomination Committee, 2018.
Member – Ph.D. Admission Committee, 2018.
Member – Faculty Merit Evaluation Committee, 2017.
Member – Ph.D. Admission Committee, 2016.
Member – Ph.D. Admission Committee, 2016.
Member – Ph.D. Admission Committee, 2015.
Chair – Research Space Review Committee, 2015.
Member – Faculty Merit Evaluation Committee, 2015.
Member – ISE UCAR Review Committee, 2014.
Chair – Course Review Committee (ITP482), 2013.
Member – Ph.D. Admission Committee, 2013.
Chair – Research Space Review Committee, 2013.
Member – Course Review Committee (ISE426), 2012.
Chair – Research Space Review Committee, 2011.
Member – Ph.D. Admission Committee, 2011.
Chair – Course Review Committee (ISE435), 2011.
Member – Course Review Committee (ISE482), 2010.
Member – Ph.D. Admission Committee, 2009.
Chair – Course Review Committee (ISE410), 2009.
Member – Faculty Merit Evaluation Committee, 2009.
Chair – Ph.D. Admission Committee, 2008.
Member – Ph.D. Admission Committee, 2006-07.
Member – Undergraduate Curriculum Development Committee, 2006-07.
Member – Ph.D. Program Development Committee, 2006-08.
Doctoral Screening Examiner, 2007-09.
USC Commencement Marshal, 2007.

University of Southern California – Viterbi School of Engineering:

Member – Advanced Manufacturing Faculty Search Committee, 2019.
Member – Advanced Manufacturing Faculty Search Committee, 2018.
Director – Daniel J. Epstein Institute, 2018-2020.
Member – Viterbi Student Design-Build Space Advisory Committee, 2015.

Member – Advanced Manufacturing Cross-departmental Search Committee, 2013.

Member – VSoE Space Metrics Committee, 2010.

Academic advisor – Undergraduate Fab Lab, USC, 2007 ~ current.

University of Southern California

Faculty Advisor – Society of Asian Scientists and Engineers (USC Chapter), 2012~Present.

Faculty Advisor – USC Chinese Engineering & Science Student Association, 2008~Present.

OTHER SERVICES

Member – Align Technology, Scientific Advisory Board, May 2021 - current.

Panel Member – State-of-the-art, Challenges and Research Needs to Further Additive Manufacturing, MSEC 2015 ASME International Manufacturing Science and Engineering Conference, Charlotte, NC, June 10, 2015.

Presenter – 1st Huazhong University of Science & Technology (HUST) SoCal Forum, Newport Beach, CA, May 31, 2015.

Panel Member – Viterbi Spring 2015 Academic Career Mentoring Panel – *Career in Industry vs. Research Lab vs. Academia*, USC, April 15, 2015.

External Expert Reviewer – Evaluation of Candidates for the Faculty Position in Design of Mechatronic Machines, Aalto University, Espoo, Finland, January 2015.

Panel Member – 2nd HKUST-USC Forum on 3D Printing – Research and Practice, HKUST, Kowloon, Hong Kong, December 18, 2014.

Panel Member – 1st HKUST-USC Forum on 3D Printing – Research and Practice, HKUST, Kowloon, Hong Kong, January 18, 2014.

Panel Member – Med Innovation Challenge Rounds – 3D Printing: Reshaping the Future of Pediatric Medical Devices, Children's Hospital Los Angeles, Los Angeles, November 21, 2013.

Team advisor – VisionFab Technologies, Maseeh Entrepreneurship Prize Competition, Viterbi School of Engineering, USC, 2013.

Team advisor – ComfortCorrect, Maseeh Entrepreneurship Prize Competition, Viterbi School of Engineering, USC, 2013.

Panel Member – An Early Career Forum on Manufacturing Research Professions in Academia, Industry and National Laboratories, Notre Dame, Indiana, June 5, 2012.

Presenter – NSF CAREER Award Proposal Workshop, USC, May 16, 2012.

Mentor – WESTEC Guided Tours for High School Students, SME, March 24, 2010.

Mentor - Bright Minds Workgroup for High School Students, SME, May 2, 2007.

External Judge - Global Access Program Final Presentation, Anderson School of Management, University of California – Los Angeles, Dec. 2006.