

Yan Wang, Ph.D.
Professor & George W. Woodruff Faculty Fellow
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Yan Wang is a Professor of Mechanical Engineering and leads the Multiscale Systems Engineering Research Group at the Georgia Institute of Technology. The research of the group is at the intersection of design, manufacturing, and materials. His research interests include modeling & simulation, design optimization, uncertainty quantification, physics-informed machine learning, and quantum scientific computing. He has published over 100 archived journal papers and over 100 peer-reviewed conference papers, including the ones with best conference paper awards at the American Society of Mechanical Engineers (ASME) Computers and Information in Engineering (CIE) Conference, ASME Multibody Systems, Nonlinear Dynamics, and Control Conference, The Minerals, Metals & Materials Society (TMS) World Congress on Integrated Computational Materials Engineering, the Institute of Industrial and Systems Engineers (IISE) Industrial Engineering Research Conference, and the International Computer-Aided Design Conference. He is a recipient of the U.S. National Science Foundation (NSF) CAREER Award, a National Aeronautics and Space Administration (NASA) Faculty Fellow, and an ASME Fellow. He has been frequently invited to give lectures and seminars at universities in U.S., Europe, and Asia, as well as to review proposals for different countries. He currently serves on the ASME leadership teams of Digitalization and Intelligent Manufacturing Technology Groups, as well as on the Workforce Technical Advisory Committee of the Quantum Economic Development Consortium. He was the Chair of ASME CIE Division and the Chair of ASME Advanced Modeling and Simulation Technical Committee. He is the current Editor-in-Chief of the ASME Journal of Computing and Information Science in Engineering.

Professor Wang received his B.S. degree from Tsinghua University, M.S. from Chinese Academy of Sciences, and Ph.D. from the University of Pittsburgh. His academic career started as a co-Principal Investigator to establish the NSF Industry-University Cooperative Research Center for e-Design in 2003 involving five major U.S. universities and dozens of major U.S. manufacturers. As the Center's information infrastructure research thrust lead, he worked on research issues of product lifecycle management including interoperability, cybersecurity in manufacturing, and quantified constraint satisfaction problem to enhance design and manufacturing intelligence. In 2007, he initiated a new research area, computer-aided nano-design, which is to develop new models and descriptions of complex and porous structures at multiple length scales and enable integrated product-materials engineering. The proposed novel periodic surface modeling approach has now been widely adopted by thousands of engineers and researchers worldwide in modeling porous structures such as additively manufactured scaffolds, metamaterials, and heat exchangers. Professor Wang also pioneered optimization and engineering simulation based on quantum computer a decade ago. His recent work includes hybrid physics-based data-driven approaches including scalable Bayesian optimization, physics-informed machine learning, physics-based compressive sensing, and trustworthy cyber-physical-social systems. Concurrently, he is also devoted to developing new mathematical formalisms and computational methods to enable reliable simulation under uncertainty and quantum scientific computing.

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I. Earned Degrees

Degree	Year	University	Field
Doctor of Philosophy	2003	University of Pittsburgh	Industrial Engineering
Master of Science	1998	Chinese Academy of Science	Electrical Engineering
Bachelor of Science	1996	Tsinghua University	Electrical Engineering

II. Employment History

Title	Organization	Years
Professor	Georgia Institute of Technology <i>School of Mechanical Engineering</i>	2020–present
Associate Professor	Georgia Institute of Technology <i>School of Mechanical Engineering</i>	2015–2020
Assistant Professor	Georgia Institute of Technology <i>School of Mechanical Engineering</i>	2009–2015
Assistant Professor	University of Central Florida <i>Department of Industrial Engineering</i>	2005–2009
Research Assistant Professor	University of Pittsburgh <i>Department of Industrial Engineering</i>	2003–2005

III. Honors and Awards

A. International or National Awards

- American Society of Mechanical Engineers (ASME) Fellow, 2021
- The 40th ASME Computers and Information in Engineering Conference, Best Conference Paper Award (with A. Tran et al.), 2020
- ASME Journal of Biomechanical Engineering Editor’s Choice Paper Award (with S. Travaglino et al.), 2020
- ASME Computers and Information in Engineering (CIE) Division Distinguished Service Award, 2020
- Journal of Mechanical Design Guest Editor Award, 2018
- National Aeronautics & Space Administration (NASA) Glenn Research Center Faculty Fellow, 2017
- The 12th ASME International Multibody Systems, Nonlinear Dynamics, and Control (MSNDC) Conference, Best Conference Paper Award, 2016
- The Minerals, Metals & Materials Society (TMS) 3rd World Congress on Integrated Computational Materials Engineering (ICME), Best Poster Award (with L. He), 2015
- Most Cited Articles in Computer-Aided Design, 2012

- The 31st ASME Computers and Information in Engineering Conference, Best Conference Paper Award, 2011
- International Computer-Aided Design Conference, Best Conference Paper Award, 2009
- Institute of Industrial & Systems Engineers (IISE) Industrial Engineering Research Conference, Best Paper Award in Manufacturing & Design, 2007
- U.S. National Science Foundation (NSF) Faculty Early Career Development Award, 2007
- U.S. National Research Council on Design Informatics & Environments Virtual Congress Member, 2006

B. Institute or School Awards

- George W. Woodruff Faculty Fellow, 2017–2023
- Center for Teaching & Learning Thank-A-Teacher Program Awards, 2020, 2022
- Center for the Enhancement of Teaching and Learning (CETL) Class 1969 Teaching Fellow, 2010–2011

IV. Research, Scholarship, and Creative Activities

A. Published Books, Book Chapters, and Edited Volumes

1. Refereed Book Chapters

1. **Sestito J. M.**¹, **Liu D.**, **Lu Y.**, **Song J.-H.**, **Tran A. V.**, **Kempner M. J.**, Harris T.A.L., Ahn S.-H., and Wang Y. (2021) Multiscale process modeling of shape memory alloy fabrication with directed energy deposition. *Manufacturing in the Era of 4th Industrial Revolution – Vol. 1. Recent Advances in Additive Manufacturing*, eds. by H. Bruck, Y. Chen, and S.K. Gupta (World Scientific), Ch.3, pp. 41-76.
2. Wang Y. (2020) Quantifying trust perception to enable design for connectivity in cyber-physical-social systems. *Emotional Engineering*, eds. By S. Fukuda (Springer). Vol.8, pp.85-113.
3. Wang Y., D.L. McDowell (2020) Uncertainty quantification in materials modeling. *Uncertainty Quantification in Multiscale Materials Modeling*, eds. by Y. Wang and D.L. McDowell (Elsevier), Ch.1, pp.1-40.
4. **Tran A.V.**, **Liu D.**, **He L.**, and Wang Y. (2020) Data-driven acceleration of first-principles saddle point and local minimum search based on scalable Gaussian processes. *Uncertainty Quantification in Multiscale Materials Modeling*, eds. by Y. Wang and D.L. McDowell (Elsevier), Ch.5, pp.119-168.
5. **Tran A.V.** and Wang Y. (2020) Reliable molecular dynamics simulations for intrusive uncertainty quantification using generalized interval analysis. *Uncertainty Quantification in Multiscale Materials Modeling*, eds. by Y. Wang and D.L. McDowell (Elsevier), Ch.7, pp.229-271.
6. Wang Y. (2020) Sensitivity analysis in kinetic Monte Carlo simulation based on random set sampling. *Uncertainty Quantification in Multiscale Materials Modeling*, eds. by Y. Wang and D.L. McDowell (Elsevier), Ch.8, pp.273-299.

¹Boldface indicates the advised graduate or undergraduate student.

7. **Tallman A. E.**, Swiler L.P., Wang Y., D.L. McDowell (2020) Hierarchical multiscale model calibration and validation for materials applications. *Uncertainty Quantification in Multiscale Materials Modeling*, eds. by Y. Wang and D.L. McDowell (Elsevier), Ch.14, pp.449-471.
8. Wang Y. (2014) First principles process planning for computer-aided nanomanufacturing. *Advances in Computers and Information in Engineering Research*, eds. by J. Michopoulos, D. Rosen, C. Paredis, and J. Vance (ASME Press). Ch.1.
9. Wang Y. (2006) Document-driven design for distributed CAD services. *Artificial Intelligence and Integrated Intelligent Information Systems: Emerging Techniques and Applications*, eds. by X.F. Zha (Hershey, PA: Idea Group Inc.). Ch.18, pp.371-397.
10. Nnaji B.O, Wang Y., and Kim K.Y. (2005) e-Design systems. *The Handbook of Industrial and System Engineering*, eds. by A. Badiru (Boca Raton, FL: Taylor & Francis Group). Ch.28, pp.28-1 26.

2. Edited Volumes

1. Wang Y. and McDowell D.L. (eds.) (2020) *Uncertainty Quantification in Multiscale Materials Modeling*. Elsevier (ISBN:9780081209411, 604 pages)

B. Refereed Publications and Submitted Articles

1. Published and Accepted Journal Articles

1. **Kim J. E.** and Wang, Y. (2023) Quantum approximate Bayesian optimization algorithms with two mixers and uncertainty quantification. *IEEE Transactions on Quantum Engineering*, (in press)
2. Wang Y., **Kim J. E.**, and Suresh, K. (2023) Opportunities and challenges of quantum computing for engineering optimization. *Journal of Computing and Information Science in Engineering*, 23(6): 060817.
3. Nemani V., Biggio L., Huan X., Hu Z., Fink O., Tran A., Wang Y., Zhang X., and Hu C. (2023) Uncertainty quantification in machine learning for engineering design and health prognostics: A tutorial. *Mechanical Systems and Signal Processing*, 205: 110796
4. Lu Y., Wang Y., and Pan L. (2023) A feature-based physics-constrained active dictionary learning scheme for image-based additive manufacturing process monitoring. *Journal of Manufacturing Processes*, 103: 261-273.
5. **Liu D.**, **Pusarla P.**, and Wang Y. (2023) Multi-fidelity physics-constrained neural networks with minimax architecture. *Journal of Computing and Information in Engineering*, 23:(3): 031008.
6. **Kempner M.**, **Sestito J. M.**, Wang Y., and Zarkadoula E. (2023) Molecular dynamics simulations of cascade events in AlN. *Results in Materials*, 17: 100383.
7. **Malashkhia L.**, **Liu D.**, **Lu Y.**, and Wang Y. (2023) Physics-constrained Bayesian neural network for bias and variance reduction. *Journal of Computing and Information in Engineering*, 23(1): 011012.
8. **Lu Y.** and Wang Y. (2022) Structural optimization of metamaterials based on periodic surface modeling. *Computer Methods in Applied Mechanics and Engineering*, 395: 115057.
9. **Sestito J. M.**, **Kempner M.**, Harris T. A. L., Zarkadoula E., Wang Y. (2022) Development of aluminum scandium nitride molecular dynamics force fields with scalable multi-objective Bayesian optimization. *JOM*, 74: 3487-3497.

10. **Zhang Z., Malashkhia L.,** Zhang Y., Shevtshenko E., Wang Y. (2022) Design of Gaussian process based model predictive control for seam tracking in a laser welding digital twin environment. *Journal of Manufacturing Processes*, 80: 916-828.
11. **Tran A.,** Wildey T., Sun J., **Liu D.,** and Wang Y. (2022) A stochastic reduced-order model for statistical microstructure descriptors evolution. *Journal of Computing and Information Science in Engineering*, 22(6): 061005.
12. **Sestito J. M.,** Harris T. A. L., Wang Y. (2022) Reduced-order kinetic Monte Carlo model to simulate water diffusion in biodegradable polymers. *Computational Materials Science*, 203: 111141.
13. **Lu Y.** and Wang Y. (2021) Physics based compressive sensing to monitor temperature and melt flow in laser powder bed fusion. *Additive Manufacturing*, 47: 102304.
14. **Tran A. V.,** Eldred M., McCann S., Wang Y. (2021) srMO-BO-3GP: A sequential regularized multi-objective Bayesian optimization for constrained design applications using an uncertain Pareto classifier, *Journal of Mechanical Design*, 144(3): 031705.
15. **Song J.-H.,** Ahn S.-H., and Wang Y. (2021) A multiscale adhesion model for deposition prediction in laser enhanced nanoparticle deposition process. *Acta Materialia*, 208: 116740.
16. Wang Y. (2021) Topology-informed information dynamics modeling in cyber-physical-social system networks. *Artificial Intelligence for Engineering Design, Analysis and Manufacturing*, 35(3): 316-331.
17. Wang Y. (2021) Probabilistic modeling of information dynamics in networked cyber-physical-social systems. *IEEE Internet of Things Journal*, 8(19): 14934-14947.
18. **Lu Y.,** Shevtshenko E., and Wang Y. (2021) Physics based compressive sensing to enable digital twins of additive manufacturing processes. *Journal of Computing and Information Science in Engineering*, 21(3): 031009.
19. **Lu Y.** and Wang Y. (2021) A physics-constrained dictionary learning approach for compression of vibration signals. *Mechanical Systems and Signal Processing*, 153: 107434.
20. **Liu D.** and Wang Y (2021) A Dual-Dimer method for training physics-constrained neural networks with minimax architecture. *Neural Networks*, 136: 112-125.
21. Wang Y. (2021) Design of trustworthy cyber-physical-social systems with discrete Bayesian optimization. *Journal of Mechanical Design*, 143(7): 071702.
22. **Shu L.,** Jiang P., and Wang Y. (2021) A multi-fidelity Bayesian optimization approach based on the expected further improvement. *Structural and Multidisciplinary Optimization*, 63(4): 1709-1719.
23. **Liu D.** and Wang Y. (2020) Multiphysics simulation of nucleation and grain growth in selective laser melting of alloys. *Journal of Computing and Information Science in Engineering*, 20(5): 051002.
24. **Sestito J. M., Thatcher M. L., Shu L.,** Harris T.A.L., Wang Y. (2020) Coarse-grained force field calibration based on multi-objective Bayesian optimization to simulate water diffusion in poly- ϵ -caprolactone. *Journal of Physical Chemistry A*, 124(24): 5042-5052.
25. **Lu Y.** and Wang Y. (2020) Physics based compressive sensing approach to monitor turbulent flow. *AIAA Journal*, 58(8): 3299-3307.
26. **Song J.-H.,** Kim H.-J., Kim M.-S., Min S.-H., Wang Y., and Ahn S.-H. (2020) Direct printing of performance tunable strain sensor via nanoparticle laser patterning process. *Virtual and Physical Prototyping*, 15(3): 265-277.
27. **Tallman A. E.,** Swiler L. P., Wang Y., and McDowell D. L. (2020) Uncertainty propagation in reduced order models based on crystal plasticity. *Computer Methods in Applied Mechanics and Engineering*, 365: 113009.

28. **Shu L.**, Jiang P., Shao X., and Wang Y. (2020) A new multi-objective Bayesian optimization formulation with the acquisition function for convergence and diversity. *Journal of Mechanical Design*, 142(9): 091703.
29. Travaglino S., Murdock K., **Tran A. V.**, Martin C., Liang L., Wang Y., and Sun W. (2020) Computational optimization study of transcatheter aortic valve leaflet design using porcine and bovine leaflets. *Journal of Biomechanical Engineering*, 142(1): 011007. [2020 JBME Editor's Choice Paper]
30. Hu Z.-X., Wang Y., Ge M.-F., and Liu J. (2020) Data-driven fault diagnosis method based on compressed sensing and improved multiscale network. *IEEE Transactions on Industrial Electronics*, 67(4): 3216-3225.
31. **Liu D.** and Wang Y. (2019) Multi-fidelity physics-constrained neural network and its application in materials modeling. *Journal of Mechanical Design*, 141(12): 121403.
32. **Cao L.**, **Liu D.**, Jiang P., Shao X., Zhou Q., and Wang Y. (2019) Multi-physics simulation of dendritic growth in magnetic field assisted solidification. *International Journal of Heat and Mass Transfer*, 144: 118673.
33. **Tallman A.E.**, Stopka K.S., Swiler L. P., Wang Y., Kalidindi S.R., and McDowell D.L. (2019) Gaussian-process-driven adaptive sampling for reduced-order modeling of texture effects in polycrystalline alpha-Ti. *JOM*, 71(8): 2646-2656.
34. **Tallman A.E.**, Swiler L.P., Wang Y., and McDowell D. L. (2019) Hierarchical top-down bottom-up calibration with consideration for uncertainty and inter-scale discrepancy of Peierls stress of bcc Fe. *Modelling and Simulation in Materials Science and Engineering*, 27(6): 064004.
35. **Tran A.V.**, **Liu D.**, Tran H., and Wang Y. (2019) Quantifying uncertainty in the process-structure relationship for Al-Cu solidification. *Modelling and Simulation in Materials Science and Engineering*, 27(6): 064005.
36. **Sestito J. M.**, Abdeljawad F., Harris T.A.L., Wang Y., and Roach A. (2019) An atomistic simulation study of nanoscale sintering: The role of grain boundary misorientation. *Computational Materials Science*, 165: 180-189.
37. **Liu D.** and Wang Y. (2019) Mesoscale multi-physics simulation of rapid solidification of Ti-6Al-4V alloy. *Additive Manufacturing*, 25: 551-562.
38. **Lu Y.** and Wang Y. (2019) An efficient transient temperature monitoring of fused filament fabrication process with physics-based compressive sensing. *IJSE Transactions*, 51(2): 168-180.
39. **Tran A.V.**, **Tran M.N.**, and Wang Y. (2019) Constrained mixed integer Gaussian mixture Bayesian optimization and its applications in designing fractal and auxetic metamaterials. *Structural and Multidisciplinary Optimization*, 59(6): 2131-2154.
40. Zhang B., Guo Q., Wang Y., and Zhan M. (2019) Model-form and parameter uncertainty quantification in structural vibration simulation using fractional derivatives. *Journal of Computational and Nonlinear Dynamics*, 14(5): 051006.
41. **Tran A.V.**, Sun J., Furlan J.M., Pagalthivarthi K.V., Visintainer R.J., and Wang Y. (2019) pBO-2GP-3B: A batch parallel known/unknown constrained Bayesian optimization with feasibility classification and its applications in computational fluid dynamics. *Computer Methods in Applied Mechanics and Engineering*, 347: 827-852.
42. **Tran A.V.**, Furlan J.M., Pagalthivarthi K.V., Visintainer R.J., Wildey T., and Wang Y. (2019) WearGP: A computationally efficient machine learning framework for local erosive wear predictions via nodal Gaussian processes. *Wear*, 422-423: 9-26.
43. **Wu H.**, Yu Z., and Wang Y. (2019) Experimental study of the process failure diagnosis in additive manufacturing based on acoustic emission. *Measurement*, 136: 445-453

44. Wang Y. (2018) Trust quantification for networked cyber-physical systems. *IEEE Internet of Things Journal*, 5(3): 2055-2070.
45. Liu J., Hu Y., Wu B., and Wang Y. (2018) An improved fault diagnosis approach for FDM process with acoustic emission. *Journal of Manufacturing Processes*, 35: 570-579.
46. Lu Y. and Wang Y. (2018) Monitoring temperature in additive manufacturing with physics-based compressive sensing. *Journal of Manufacturing Systems*, 48(Part C): 60-70.
47. Chan S., Lu Y., and Wang Y. (2018) Data-driven cost estimation for additive manufacturing in cybermanufacturing. *Journal of Manufacturing Systems*. 46: 115-126.
48. Li J., Du Z., and Wang Y. (2018) Shape descriptor based local contour profile registration and measurement for flexible automotive sealing. *Journal of Computing and Information Science in Engineering*, 18(2): 021006.
49. Liu J., Hu Y., Wang Y., Wu B., Fan J., and Hu Z. (2018) An integrated multi-sensor fusion-based deep feature learning approach for rotating machinery diagnosis. *Measurement Science and Technology*, 29(5): 055103.
50. Zhou Q., Wang Y., Choi S.-K., Jiang P., Shao X., Hu J., and Shu, L. (2018) A robust optimization approach based on multi-fidelity metamodel. *Structural and Multidisciplinary Optimization*, 57(2): 775-797.
51. Wang Y. (2018) Resilience quantification for probabilistic design of cyber-physical system networks. *ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Part B*, 4(3): 031006.
52. Batarseh O.G. and Wang Y. (2018) An interval-based approach to model input uncertainty in M/M/1 simulation. *International Journal of Approximate Reasoning*, 95: 46-61.
53. Song J.-H., Choi K.-H., Dai R., Choi J.-O., Anh S.-H., and Wang Y. (2018) Controlled kinetic Monte Carlo simulation of laser improved nanoparticle deposition process. *Powder Technology*, 325: 651-658.
54. Tran A.V., He L., and Wang Y. (2018) An efficient first-principles saddle point searching method based on distributed kriging metamodels. *ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Part B*, 4(1): 011006.
55. Zhou Q., Wang Y., Choi S.-K., Cao L., Gao Z. (2018) Robust optimization for reducing welding-induced angular distortion in fiber laser keyhole welding under process parameter uncertainty. *Applied Thermal Engineering*, 129: 893-906.
56. Tallman A. E., Swiler L.P., Wang Y., and McDowell D.L. (2017) Reconciled top-down and bottom-up hierarchical multiscale calibration of bcc Fe crystal plasticity. *International Journal for Multiscale Computational Engineering*, 15(6): 505-523.
57. Zhou Q., Wang Y., Choi S.-K., Jiang P., Shao X., Hu J. (2017) A sequential multi-fidelity metamodeling approach for data regression. *Knowledge-Based Systems*, 134: 199-212.
58. Didari S., Wang Y., and Harris, T.A.L. (2017) Modeling gas diffusion layers with curved fibers using a genetic algorithm. *International Journal of Hydrogen Energy*, 42(36): 23130-23140.
59. Wang Y. (2017) On social value of risk information in risk communication. *ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Part B*, 3(4): 041009.
60. Zhou Q., Wang Y., Jiang P., Shao X., Choi S.-K., Hu J., Cao L., and Meng X. (2017) An active learning radial basis function modeling method based on self-organization maps for simulation-based design problems. *Knowledge-Based Systems*, 131: 10-27.
61. Tran A.V. and Wang Y. (2017) Reliable molecular dynamics: Uncertainty quantification using interval analysis in molecular dynamics simulation. *Computational Materials Science*, 127: 141-160.

62. **Liu J.**, Hu Y., Wu B., Wang Y., and Xie F. (2017) A hybrid generalized hidden Markov model based condition monitoring approach for rolling bearings. *Sensors*, 17(5): 1143.
63. **Liu J.**, Wu B., Wang Y., and Hu Y. (2017) An integrated condition monitoring method for milling process using reduced decomposition features. *Measurement Science and Technology*, 28(8): 085101.
64. **Wu H.**, Yu Z., and Wang Y. (2017) Real-time FDM machine condition monitoring and diagnosis based on acoustic emission and hidden semi-Markov model. *International Journal of Advanced Manufacturing Technology*, 90(5): 2027-2036.
65. **Liu J.**, Hu Y., Wu B., Frakes D.H., and Wang Y. (2017) A specific structuring element-based opening method for rapid geometry measurement of weld pool. *International Journal of Advanced Manufacturing Technology*, 90(5): 1465-1477.
66. **Huang W.**, Wang Y., and Rosen D.W. (2017) A multiscale materials modeling method with seamless zooming capability based on surfacelets. *Journal of Computing and Information Science in Engineering*, 17(2): 021007.
67. **Huang W.**, Wang Y., and Rosen D.W. (2016) Material feature representation and identification with composite surfacelets. *Journal of Computational Design and Engineering*, 3(4): 370-384.
68. **Wu H.**, Wang Y., and Yu Z. (2016) In situ monitoring of FDM machine condition via acoustic emission. *International Journal of Advanced Manufacturing Technology*, 84(5): 1483-1495.
69. Xie F., Hu Y., Wu B., and Wang Y. (2016) A generalized hidden Markov model and its applications in recognition of cutting states. *International Journal of Precision Engineering and Manufacturing*, 17(11): 1471-1482.
70. Elishakoff I., Gabriele S., and Wang Y. (2016) Generalized Galileo problem in interval setting for functionally related loads. *Archive of Applied Mechanics*, 86(7): 1203-1217.
71. Wang Y. (2016) Model form calibration in drift-diffusion simulation using fractional derivatives. *ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Part B*, 2(3): 031006.
72. Wang Y. (2016) Controlled kinetic Monte Carlo simulation for computer-aided nanomanufacturing. *Journal of Micro and Nano-Manufacturing*, 4(1): 011001.
73. **Hu J.**, Wang Y., Cheng A., and Zhong Z. (2015) An extended Kalman filtering mechanism based on generalized interval probability. *ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Part B*, 1(3), 031002.
74. He B., Tang W., Wang J., Huang S., Deng Z., and Wang Y. (2015) Low-carbon conceptual design based on product life cycle assessment. *International Journal of Advanced Manufacturing Technology*, 81(5): 863-874.
75. He B., Wang J., Huang S., and Wang Y. (2015) Low-carbon product design for product life cycle. *Journal of Engineering Design*, 26(10-12): 321-339.
76. **Huang W.**, Didari S, Wang Y., and Harris T.A.L. (2015) Generalized periodic surface model and its application in designing fibrous porous media. *Engineering Computations*, 32(1): 7-36.
77. **Hu J.**, Wang Y., Cheng A., and Zhong Z. (2015) Sensitivity analysis in quantified interval constraint satisfaction problems. *Journal of Mechanical Design*, 137(4): 041701.
78. Wang Y. (2015) Stochastic dynamics simulation with generalized interval probability. *International Journal of Computer Mathematics*, 92(3): 623-642.
79. Didari S., Asadi A., Wang Y., and Harris T. A. L. (2014) Modeling of composite fibrous porous diffusion media. *International Journal of Hydrogen Energy*, 39(17): 9375-9386.
80. **Huang W.**, Wang Y., and Rosen D.W. (2014) Inverse surfacelet transform for image reconstruction with constrained-conjugate gradient methods. *Journal of Computing and Information Science in Engineering*, 14(2): 021005.

81. Xie F., Wu B., Hu Y., Wang Y., Jia G., and Cheng Y. (2014) A generalized interval probability based optimization method for training generalized hidden Markov model. *Signal Processing*, 94(1): 319-329.
82. **Hu J.**, Aminzadeh M., and Wang Y. (2014) Searching feasible design space by solving quantified constraint satisfaction problems. *Journal of Mechanical Design*, 136(3): 031002.
83. Wang Y. (2013) Reliable kinetic Monte Carlo simulation based on random set sampling. *Soft Computing*, 17(8): 1439-1451.
84. **Tessier S.M.** and Wang Y. (2013) Ontology-based feature mapping and verification between CAD systems. *Advanced Engineering Informatics*, 27(1): 76-92.
85. Xie F., Wu B., Hu Y., and Wang Y. (2013) A generalized Markov chain model based on generalized interval probability. *Science China: Technological Sciences*, 56(9): 2132-2136.
86. **Hillsman C.**, Wang Y., and Nazzal, D. (2013) A semi-automatic mold cost estimation framework based upon geometry similarity. *International Journal of Advanced Manufacturing Technology*, 68(5-8): 1387-1399.
87. Rosen D.W., Jeong N., and Wang Y. (2013) A method for reverse engineering of material microstructure for heterogeneous CAD. *Computer-Aided Design*, 45(7): 1068-1078.
88. Wang Y. (2013) Generalized Fokker-Planck equation with generalized interval probability. *Mechanical Systems and Signal Processing*, 37(1-2):92-104.
89. **Crnkic E.**, **He L.**, and Wang Y. (2013) Geometry-guided crystal phase transition pathway search. *Computer-Aided Design*, 45(1):53-64.
90. Didari S., Harris T.A.L., **Huang W.**, **Tessier S.M.**, and Wang Y. (2012) Feasibility of periodic surface models to develop gas diffusion layers: A gas permeability study. *International Journal of Hydrogen Energy*, 37(19): 14427-14438.
91. **Shevtshenko E.**, Bashkite V., Maleki M., and Wang Y. (2012) Sustainable design of material handling equipment: A win-win approach for manufacturers and customers. *Mechanika*, 18(5): 561-568.
92. Didari S, Harris T.A.L., **Huang W.**, **Tessier S.M.**, and Wang Y. (2011) Transport phenomena in carbon paper gas diffusion layers. *ECS Transactions*, 41(1): 499-512.
93. Wang Y. (2011) Multiscale uncertainty quantification based on a generalized hidden Markov model. *Journal of Mechanical Design*, 133(3): 031004.
94. **Batarseh O.G.**, Nazzal D., and Wang Y. (2010) An interval-based metamodeling approach to simulate material handling in semiconductor wafer fabs. *IEEE Transactions on Semiconductor Manufacturing*, 23(4): 527-537.
95. Wang Y. and Rosen D.W. (2010) Multiscale heterogeneous modeling with surfacelets. *Computer-Aided Design and Applications*, 7(5): 759-776.
96. Wang Y. (2010) Imprecise probabilities based on generalised intervals for system reliability assessment. *International Journal of Reliability and Safety*, 4(4): 319-342.
97. **Qi C.** and Wang Y. (2009) Feature-based crystal construction in computer-aided nano-design. *Computer-Aided Design*, 41(11): 792-800.
98. Wang Y. (2009) Computing Minkowski sum of periodic surface models. *Computer-Aided Design and Applications*, 6(6): 825-837. [2009 International CAD Conference Best Conference Paper Award]
99. **Shevtshenko E.** and Wang Y. (2009) Decision support under uncertainties based on robust Bayesian networks in reverse logistics management. *International Journal of Computer Applications in Technology*, 36(3/4): 247-258.

100. **Shevtshenko E., Kramarenko S.,** Karaulova T., and Wang Y. (2009) Manufacturing project management in the conglomerate enterprises supported by IDSS. *Journal of Achievements in Materials and Manufacturing Engineering*, 33(1): 94-102.
101. Wang Y. (2008) Degree elevation and reduction of periodic surfaces. *Computer-Aided Design and Applications*, 5(6): 841-854.
102. Wang Y. (2008) Semantic tolerance modeling with generalized intervals. *Journal of Mechanical Design*, 130(8): 081701(1-7).
103. Wang Y. (2008) Interpretable interval constraint solvers in semantic tolerance analysis. *Computer-Aided Design and Applications*, 5(5): 654-666.
104. Wang Y. (2008) Closed-loop analysis in semantic tolerance modeling. *Journal of Mechanical Design*, 130(6): 061701(1-10).
105. Wang Y. (2007) Loci periodic surface reconstruction from crystals. *Computer-Aided Design and Applications*, 4(1-4): 437-447.
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98. Wang Y., Nnaji B.O., and Chiang W.-S., "Document-driven design for distributed CAD services in service-oriented architecture." *Proceedings of 2005 ASME International Design Engineering Technical Conferences & Computers and Information in Engineering Conference (IDETC-CIE2005)*, Sept. 24-28, 2005, Long Beach, California, Paper No. DETC2005-84504.
99. Wang Y., Ajoku P.N., and Nnaji B.O., "Distributed data access control for lean product information sharing in collaborative design." *Proceedings of 2004 ASME International Design Engineering Technical Conferences & Computers and Information in Engineering Conference (IDETC-CIE2004)*, Sept. 28-Oct.3, 2004, Salt Lake City, Utah, Paper No. DETC2004/CIE-57748.
100. Wang Y., "Solving interval constraint in computer-aided design." R. L. Muhanna and R. L. Mullen (Eds.) *Proceedings of NSF Workshop on Reliable Engineering Computing (REC'04)*, September 15-17, 2004, Georgia Institute of Technology, Savannah, Georgia, pp.251-267.
101. Nnaji B.O, Wang Y., and Kim K.Y., "Service-oriented architecture for integrated e-Design and realization of engineered products." *Proceedings of the 2004 International Forum on DFMA*, June 22-23, 2004, Wakefield, Rhode Island.
102. Nnaji B.O, Wang Y., and Kim K.Y., "Cost-effective product realization: Service-oriented architecture for integrated product life-cycle management." *Proceedings of the 7th IFAC Symposium on Cost Oriented Automation*, June 7-9, 2004, Gatineau/Ottawa, Canada.

103. Wang Y., Ajoku P.N., and Nnaji B.O., "Scheduled role-based distributed data access control model for data sharing in collaborative design." *Proceedings of the 2004 International Symposium on Collaborative Technologies and Systems (CTS2004)*, January 18-23, 2004, San Diego, California , pp.191-196.
104. Wang Y., Kim K.Y., Muogboh O.S., and Nnaji, B.O., "Distributed CAD data modeling over the Internet." *Proceedings of the 17th International Conference on Production Research (ICPR-17)*, August 3-7, 2003, Blacksburg, Virginia, Paper No.0186.
105. Kim K.Y., Muogboh O.S., Wang Y., Lovell M.R., Nnaji B.O., and Conover D.L. "Integration of computer-aided assembly design and assembly analysis in e-Design and realization environment." *Proceedings of the 17th International Conference on Production Research (ICPR-17)*, August 3-7, 2003, Blacksburg, Virginia, Paper No.0185.
106. Wang Y., Lin L.-Z., Jiang X.-H., "Combination problems of the HTS permanent magnet." *Proceedings of The 17th International Cryogenic Engineering Conference (ICEC'17)*, July 14-17, 1998, Bournemouth, UK, pp.591-594.

3. Other Refereed Material

1. Gandomi A.H., Mignolet M., Soize C., and Wang Y. (2023) Special Issue: Machine Intelligence for Engineering Under Uncertainties. *Journal of Computing and Information Science in Engineering*, 23(1): 010201.
2. He B., Song Y., and Wang Y. (2021) Special Issue: Digital Twin-Driven Design and Manufacturing. *Journal of Computing and Information Science in Engineering*, 21(3): 030301.
3. Wang Y., Panchal J.H., and Mani Mahesh (2019) Special Issue: Highlights from ASME CIE 2018. *Journal of Computing and Information Science in Engineering*, 19(3): 030301.
4. Serban R., Wang Y., Choi K.K., and Jayakumar P. (2019) Special Issue: Sensitivity Analysis and Uncertainty Quantification. *Journal of Computational and Nonlinear Dynamics*, 14(2): 020301.
5. Wang Y. and Swiler L. (2018). Editorial: Special Issue on Uncertainty Quantification in Multiscale System Design and Simulation. *ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Part B: Mechanical Engineering*, 4(1): 010301.
6. Arroyave R., Guest J., Seepersad C. C., Tovar A., and Wang Y. (2018). Editorial of Special Issue: Design of Engineered Materials and Structures. *Journal of Mechanical Design*, 140(11): 110301.
7. Kim H., Liu Y., Wang C. and Wang Y. (2017). Editorial of Special issue: Data-Driven Design (D3). *Journal of Mechanical Design*, 139(11): 110301.
8. Wang Y. and Horváth I. (2013) Editorial: Computer-Aided Multi-scale Materials and Product Design. *Computer-Aided Design*, 45(1): 1-3.

C. Other Publications and Creative Products

1. Non-refereed Conference Presentations with Proceedings

1. Wang Y., Lasrado V., and Alhat D., "A review of recent transition state search methods in phase transition simulation," *Proceedings of The 4th International Conference on Multiscale Materials Modeling (MMM2008)*, October 27-31, 2008, Tallahassee, Florida, pp.70-73.
2. Qi C. and Wang Y., "Crystal construction based on periodic surfaces," *Proceedings of The 4th International Conference on Multiscale Materials Modeling (MMM2008)*, October 27-31, 2008, Tallahassee, Florida, pp.532-535.

3. Wang Y., Nnaji B.O., and Chiang W.-S., "Document-driven design for distributed CAD services," *Proceedings of 2005 International Conference on e-Design*, May 14, 2005, Atlanta, Georgia.

2. Software

1. Batarseh O.G. and Wang Y., JSim, An open-source software toolkit for discrete-event simulation written in Java language
2. Tran A.V. and Wang Y., Reliable Molecular Dynamics. Available at: <https://github.com/GeorgiaTechMSSE/>
3. Wang Y., Reliable and Controlled Kinetic Monte Carlo Simulation. Available at: <https://github.com/GeorgiaTechMSSE/>

3. Patents

a. Patents Awarded

- "Systems and Methods for Quantum Global Optimization," U.S. Patent No. 11,514,038 B2. November 29, 2022

b. Provisional Patents, Applications, and Invention Disclosures

- "Hybrid Compressed Sensing to Monitor Manufacturing Processes," U.S. Provisional Patent Application No. 62/533,744. July 18, 2017.
- "Physics Based Compressive Sensing to Measure Turbulent Fluid Flows," U.S. Provisional Patent Application No. 63/027,445. May 20, 2020

D. Presentations

1. Keynote Addresses and Plenary Lectures

1. "Physics-Informed Machine Learning for Physics-Based Data-Driven Design and Manufacturing," *2023 ASME International Mechanical Engineering Congress & Exposition*, Oct. 29-Nov. 2, 2023, New Orleans, Louisiana.
2. "Multi-Fidelity Physics-Constrained Neural Networks for Materials Design," *2018 Design Science Research Workshop on Data Driven Design and Learning*, August 23-25, 2018, Montreal, Canada.
3. "Uncertainty in Materials Modeling, Simulation, and Development for ICME," *2015 ACS/AIST /ASM/TMS Materials Science & Technology*, October 4-8, 2015, Columbus, Ohio.
4. "Sustainability Innovation through First-Principles Modeling and Simulation," *2013 International Conference on Sustainable Rural Development*, August 25-26, 2013, Purwokerto, Central Java, Indonesia.

2. Invited Conference and Workshop Presentations

1. **Kim J. E.** and Wang Y. "Quantum approximate Bayesian optimization algorithm for design of high-entropy alloys," *The 153rd TMS Annual Meeting & Exhibition*, March 3-7, 2024, Orlando, Florida.
2. **Kim J. E., Sul J.,** and Wang Y. "Solving partial differential equations with quantum approximate Bayesian optimization algorithm," *The 2023 American Society of Civil Engineers (ASCE) Engineering Mechanics Institute International Conference*, August 27-30, 2023, Palermo, Italy.

3. **Kim J. E.** and Wang Y. "Quantum approximate Bayesian optimization algorithm with two mixers and uncertainty quantification," *The 17th U.S. National Congress on Computational Mechanics*, July 23-27, 2023, Albuquerque, New Mexico.
4. **Malashkhia L.**, Liu D., Tran A., Lu Y., and Wang Y. "Physics-constrained Bayesian neural networks to model stochastic dynamics of grain evolution," *The 17th U.S. National Congress on Computational Mechanics*, July 23-27, 2023, Albuquerque, New Mexico.
5. Liu D., Lu Y., and Wang Y. "Physics-informed machine learning for additive manufacturing process modeling and monitoring," *The 11th International Conference on Materials for Advanced Technology*, June 26-30, 2023, Singapore.
6. **Kim J. E.** and Wang Y. "Quantifying uncertainty in quantum approximate optimization algorithm," *The 2023 ASCE Engineering Mechanics Conference (EMI2023)*, June 6-9, 2023, Atlanta, Georgia.
7. **Malashkhia L.**, Liu D., Tran A., Lu Y., and Wang Y. "Prediction of microstructure evolution with physics-constrained Bayesian neural networks," *The ASCE 2023 Engineering Mechanics Conference (EMI2023)*, June 6-9, 2023, Atlanta, Georgia.
8. Liu D., **Malashkhia L.**, **Pusarla P.**, Lu Y., and Wang Y. "Multi-fidelity physics-constrained neural network with minimax architecture," *The IUTAM Symposium on Data-Driven Mechanics and Surrogate Modeling*, October 26-28, 2022, Paris, France.
9. **Malashkhia L.**, Liu D., and Wang Y. "Quantifying uncertainty in predictions of physics-constrained neural networks," *The 2022 Society for Industrial and Applied Mathematics (SIAM) Conference on Uncertainty Quantification (UQ22)*, April 12-15, 2022, Atlanta, Georgia.
10. **Lu Y.** and Wang Y. "Physics based compressive sensing for melt pool monitoring in laser powder bed fusion," *The 2022 IS&T Electronic Imaging & The 10th International Conference on Computational Imaging*, Jan. 17-20, 2022, virtual.
11. **Liu D.** and Wang Y. "Mesoscale simulation of nucleation and grain growth of Ti-6Al-4V alloy in selective laser melting," *The 2nd International Conference on Simulation for Additive Manufacturing*, Sept. 11-13, 2019, Pavia, Italy.
12. **Lu Y.** and Wang Y. "Physics based compressive sensing for additive manufacturing process monitoring," *The 2019 Institute for Operations Research and the Management Sciences (INFORMS) ALIO International Conference*, June 9-12, 2019, Cancun, Mexico.
13. Wang Y. "Design considerations for cyber-physical-social systems," *The 2018 ASME International Design Engineering Technical Conferences & Computers and Information in Engineering Conference (IDETC-CIE2018)*, August 26-29, 2018, Quebec City, Canada.
14. Wang Y., Dhinojwala A., and Vargas M. "Multiscale design of low ice adhesion materials," *NASA Workshop on Low Ice Adhesion Materials*, August 10, 2017, Cleveland, Ohio.
15. **Tran A.V.** and Wang Y. "Stochastic dynamics for cross-scale uncertainty propagation in molecular systems," *The SIAM 2017 Conference on Computational Science and Engineering (CSE17)*, February 27-March 3, 2017, Atlanta, Georgia.
16. Wang Y. "Predictive analytics for cost estimation in cybermanufacturing," *SAMSI Workshop on Distributed and Parallel Data Analysis*, September 21-23, 2016, Institute of Advanced Analytics, North Carolina State University, Raleigh, North Carolina.
17. Wang Y. "Simulation-based nanomaterials design and nanomanufacturing," *National Institute of Aerospace Workshop on Nanomaterials for Aerospace*, February 21, 2014, Hampton, Virginia.
18. Wang Y. "Quantifying model form uncertainty in molecular dynamics simulation," *University of Minnesota - Institute for Mathematics and its Applications (IMA) Workshop on Uncertainty Quantification in Materials Modeling*, December 16-17, 2013, Minneapolis, Minnesota.

19. Wang Y. "Validation of atomistic simulation under aleatory and epistemic uncertainties," *National Institute of Standards and Technology (NIST) Workshop on Atomistic Simulations for Industrial Needs*, August 13-14, 2013, Gaithersburg, Maryland.
20. Wang Y. "Reliable kinetic Monte Carlo simulation based on random set sampling," *Dagstuhl Seminar 11371 on Uncertainty Modeling and Analysis*, September 11-16, 2011, Schloss Dagstuhl Leibniz-Zentrum für Informatik, Wadern, Germany.

3. Conference and Workshop Presentations

1. **Malashkhia L.**, Liu D., Tran A., and Wang Y. "Physics-constrained Bayesian neural networks to predict grain evolution," The 153rd TMS Annual Meeting and Exhibition, March 3-7, 2024, Orlando, Florida.
2. Aydogdu I., **Kempner M.**, and Wang Y. "Scalable Bayesian optimization with metaheuristics for efficiency and exploitation," The 2023 ASCE Engineering Mechanics Conference, June 6-9, 2023, Atlanta, Georgia.
3. **Hong S.**, Lu Y., Ahn S.-H., and Wang Y. "Physics-constrained dictionary learning with sensor fusion for machine health monitoring," The 2023 ASCE Engineering Mechanics Conference, June 6-9, 2023, Atlanta, Georgia.
4. **Kim J.E.** and Wang Y. "Improving exploration-exploitation balance in quantum approximate Bayesian optimization algorithm with two mixers," The 2023 IISE Annual Conference and Expo, May 21-23, 2023, New Orleans, Louisiana.
5. **Malashkhia L.**, Liu D., Tran A., Lu Y., and Wang Y. "Physics-constrained Bayesian neural networks to predict stochastic dynamics of grain evolution in metal additive manufacturing," The 2023 IISE Annual Conference and Expo, May 21-23, 2023, New Orleans, Louisiana.
6. Lu Y. and Wang Y. "Sensor fusion based on physics-constrained dictionary in manufacturing process monitoring," The 2023 IISE Annual Conference and Expo, May 21-23, 2023, New Orleans, Louisiana.
7. Liu D. and Wang Y. "Multiphysics simulation of multi-layer epitaxial grain growth in laser powder bed fusion of AlSi10Mg alloy." The ASME/EWF 2022 International Additive Manufacturing Conference (IAM2022), October 19-20, 2022, Lisbon, Portugal.
8. **Sestito J.**, **Kempner M.**, Harris T., Zarkadoula E., and Wang Y., "Using scalable multi-objective Bayesian optimization to develop aluminum scandium nitride molecular dynamics force fields." The 2022 Materials Science & Technology Conference (MS&T22), October 9-12, 2022, Pittsburgh, Pennsylvania.
9. **Malashkhia L.**, Liu D., and Wang Y. "Physics-constrained Bayesian neural network to quantify uncertainty in physics-informed machine learning." The ASME 2022 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference (IDETC-CIE2022), August 14-17, 2022, St. Louis, Missouri.
10. **Malashkhia L.**, Liu D., and Wang Y. "Improving the robustness of predictions from physics-constrained neural networks." The 2022 IISE Annual Conference and Expo, May 21-24, 2022, Seattle, Washington.
11. **Lu Y.** and Wang Y. "Monitoring thermofluid field of melt pool in laser powder bed fusion with physics based compressive sensing." The 2022 IISE Annual Conference and Expo, May 21-24, 2022, Seattle, Washington.
12. Wang Y. "A quantum approximate Bayesian optimization algorithm with two mixers." The 2022 IISE Annual Conference and Expo, May 21-24, 2022, Seattle, Washington.
13. **Kempner M.**, **Sestito J.M.**, Zarkadoula E., and Wang Y. "Molecular dynamics investigation of irradiated piezoelectric AlN." The 150th TMS Annual Meeting and Exhibition, March 15-18, 2021, virtual.

14. **Liu D.** and Wang Y. "Dendritic growth prediction in metal additive manufacturing with physics-constrained neural networks." The 150th TMS Annual Meeting and Exhibition, March 15-18, 2021, virtual.
15. **Liu D.** and Wang Y. "Multiphysics simulation of microstructure evolution in selective laser melting of AlSi10Mg." The 150th TMS Annual Meeting and Exhibition, March 15-18, 2021, virtual.
16. Wang Y. "Public vs. private information in risk communication." The 2018 Society for Risk Analysis Annual Meeting, December 2-6, 2018, New Orleans, Louisiana.
17. Abdeljawad F., **Sestito J.M.**, Wang Y., Roach A.R. "Sintering kinetics in direct ink write processes: atomistic and mesoscopic modeling perspectives." The ACS/AIST/ASM/TMS Materials Science & Technology (MS&T 2018), October 14-18, 2018, Columbus, Ohio.
18. **Sestito J.**, Abdeljawad F., Harris T., and Wang Y. "An atomistic study of nanoscale sintering: Application to additive manufacturing." The ACS/AIST/ASM/TMS Materials Science & Technology (MS&T 2017), October 8-12, 2017, Pittsburgh, Pennsylvania.
19. **Tran A.V.** and Wang Y. "Design optimization of fractal metamaterials with distributed Gaussian process." The ACS/AIST/ASM/TMS Materials Science & Technology (MS&T 2017), October 8-12, 2017, Pittsburgh, Pennsylvania.
20. **Lu Y.** and Wang Y. "Process temperature monitoring with physics-based compressive sensing." The 2017 Annual International Solid Freeform Fabrication Symposium (SFF Symp 2017), August 7-9, 2017, Austin, Texas.
21. Song R., **Lu Y.**, Telenko C., and Wang Y. "Manufacturing energy consumption estimation using machine learning approach." The 2017 ASME International Design Engineering Technical Conferences & Computers and Information in Engineering Conference (IDETC-CIE2017), Aug. 6-9, 2017, Cleveland, Ohio, Presentation No. DETC2017-67679 [**Design for Manufacturing and Life Cycle Conference Student Poster Competition Award 2nd Place**]
22. **Song J.-H.**, Lee H.-T., Kim M.-S., Wang Y., and Ahn S.-H. "Control of thin film porosity in nano particle deposition system using novel laser sintering process." International Symposium on Green Manufacturing and Applications (ISGMA 2017), June 27-July 1, 2017, Gyeongju, South Korea.
23. **Liu D.** and Wang Y. "Mesoscale multi-physics simulation of solidification in selective laser melting process." The 4th TMS World Congress on Integrated Computational Materials Engineering (ICME 2017), May 21-25, 2017, Ypsilanti, Michigan.
24. **Tallman A.E.**, Swiler L., Wang Y., and McDowell D.L. "Bayesian selection of model-model connections in multiscale hierarchies with uncertainty in calibration." The 2017 Society for Industrial and Applied Mathematics (SIAM) Conference on Computational Science and Engineering (CSE 17), February 27-March 3, 2017, Atlanta, Georgia.
25. **Tallman A.**, Wang Y., and Vargas M. "Computational modeling approaches to multiscale design of icephobic surfaces." The 40th Annual Meeting of the Adhesion Society, Feb. 26-March 1, 2017, St. Petersburg, Florida.
26. **Lu Y.**, **Yang C.**, and Wang Y. "Process-oriented data exchange for interoperable and verifiable additive manufacturing." The ASME 2016 Manufacturing Science and Engineering Conference (MSEC2016) & The 44th SME North America Manufacturing Research Conference (NAMRC44), June 27-July1, 2016, Blacksburg, Virginia, USA, MSEC2016-8711.
27. **Song J.-H.**, **Choi K.-H.**, **Dai R.**, Choi J.-O., Ahn S.-H., and Wang Y. "Controlled kinetic Monte Carlo simulation of laser sintering in nano particle deposition systems." The 2016 ASME Manufacturing Science and Engineering Conference (MSEC2016) & The 44th SME North America Manufacturing Research Conference (NAMRC44), June 27-July1, 2016, Blacksburg, Virginia, USA, MSEC2016-8712.

28. **Ko M.H., Chan S.L., Song J.-H.,** and Wang Y. "Cost analytics service for cybermanufacturing." The ASME 2016 Manufacturing Science and Engineering Conference (MSEC2016) & The 44th SME North America Manufacturing Research Conference (NAMRC44), June 27-July1, 2016, Blacksburg, Virginia, USA, MSEC2016-8727.
29. **Tran A.V.** and Wang Y. "Sensitivity assessment of interatomic potentials on-the-fly in molecular dynamics." The 2016 ASCE Engineering Mechanics Institute Conference (EMI2016) & Probabilistic Mechanics and Reliability Conference (PMC2016), May 22-25, 2016, Nashville, Tennessee.
30. Wang Y. "Anomalous stochastic resonance modeled by fractional Fokker-Planck equation." The ASCE 2016 Engineering Mechanics Institute Conference (EMI2016) & Probabilistic Mechanics and Reliability Conference (PMC2016), May 22-25, 2016, Nashville, Tennessee.
31. **Blumer J.D.,** McDowell D.L., and Wang Y. "A Bayesian Approach for Multiscale Model Validation with Imprecise Probability," The 2016 MRS Spring Meeting and Exhibit, March 28-April 1, 2016, Phoenix, Arizona.
32. **He L.** and Wang Y. "Searching transition states under model-form uncertainty in density functional theory simulation," The 145th TMS Annual Meeting and Exhibition, February 14-18, 2016, Nashville, Tennessee.
33. Kreeger R.E., Vargas M., **Tran A.,** Wang Y., Palacios J., and Hadley K.R. "Multiscale materials design for in-flight icing mitigation." The 39th Annual Meeting of the Adhesion Society, Feb. 21-24, 2016, San Antonio, Texas.
34. Wang Y. "Decision making under risk and ambiguity." The 2015 Society for Risk Analysis Annual Meeting, December 6-10, 2015, Arlington, Virginia.
35. Wang Y. "Quantum walks in fractional diffusion processes." The ASCE 2015 Engineering Mechanics Institute Conference (EMI 2015), June 16-19, 2015, Stanford, California.
36. **Tallman A.E., Blumer J.D.,** Narayanan, S., Zeng Z., Wang Y., Zhu T., and McDowell D.L. "Uncertainty quantification of bcc Fe single crystal plasticity using multi-model analysis." Proceedings of The 3rd World Congress on Integrated Computational Materials Engineering (ICME2015), May 31-June 4, 2015, Colorado Springs, Colorado.
37. Wang Y. "On social value of risk information in risk communication." The 2014 Society for Risk Analysis Annual Meeting, December 7-10, 2014, Denver, Colorado.
38. Wang Y., McDowell D.L., Blumer J.D., Tallman A.E. "Quantification of model form uncertainty in molecule dynamics simulation." The 2014 SIAM Conference on Uncertainty Quantification, March 30-April 3, 2014, Savannah, Georgia.
39. Cha E.J. and Wang Y. "Risk-informed decision framework for built-environment: The role of ambiguity." 2013 Society for Risk Analysis Annual Meeting, December 8-11, 2013, Baltimore, Maryland.
40. Wang Y. "Nanoscale risk assessment and uncertainty quantification in atomistic simulations." 2013 Society for Risk Analysis Annual Meeting, December 8-11, 2013, Baltimore, Maryland.
41. Wang Y., **Huang W.,** and Rosen D.W. "Multiscale heterogeneous materials modeling with surfacelets." The 49th Society of Engineering Science (SES) Annual Technical Meeting, Oct.10-12, 2012, Atlanta, Georgia.
42. Wang Y. "Generalized Chapman-Kolmogorov equation for multiscale system analysis." 2012 SIAM Conference on Uncertainty Quantification, April 2-5, 2012, Raleigh, North Carolina.
43. Wang Y. "Generalized interval probability and applications in multiscale analysis." The 48th SES Annual Technical Meeting, Oct.12-14, 2011, Evanston, Illinois.
44. **Batarseh O.G.,** Wang Y., and Nazzal D., "A metamodel approach to simulate materials handling in wafer fabs." 2008 INFORMS Annual Meeting, Oct.12-15, 2008, Washington DC.

45. Yue J., Kim J.B., Wang Y., and **Hamza H.**, “The virtual reality telerehabilitation system for accessibility of the built environment: Feasibility test of multimedia decision supporting system, IP camera, and coded targets.” 2007 Rehabilitation Engineering and Assistive Technology Society of North America Conference (RESNA2007), June 15-19, 2007, Phoenix, Arizona

4. Invited Seminar Presentations

1. (June 2023) “Physics-Informed Machine Learning for Physics-Based Data-Driven Design and Manufacturing”, Engineering Product Development Pillar, Singapore University of Technology and Design.
2. (June 2023) “Physics-Informed Machine Learning for Physics-Based Data-Driven Design and Manufacturing”, Department of Mechanical Engineering, Dankook University.
3. (November 2022) “Probabilistic Design of Cyber-Physical-Social Systems”, Department of Mechanical Engineering, Stony Brook University.
4. (September 2022) “Physics-Informed Machine Learning for Physics-Based Data-Driven Design and Manufacturing”, School of Computational Science and Engineering, Georgia Institute of Technology.
5. (April 2021) “Trust Quantification for Cyber-Physical-Social Systems”, Department of Computer Science, Auburn University.
6. (February 2021) “Multi-Fidelity Physics-Constrained Neural Network and its Application in Materials Modeling”, ASME Journal of Mechanical Design Webinar on Data-driven Approaches for Engineering Design.
7. (June 2020) “Generalized Interval Probability and Its Applications in Engineering”, Institute of Uncertainty and Risk, University of Liverpool, UK.
8. (October 2019) “Physics Based Data Driven Predictive Analytics in Smart Manufacturing”, Tennessee Tech Center for Manufacturing Research, Cookeville, TN.
9. (January 2019) “Mesoscale Multi-Physics Simulation of Rapid Solidification of Ti-6Al-4V Alloy”, Lawrence Livermore National Laboratory, Livermore, CA.
10. (August 2017) “Reliable Atomistic Simulation under Uncertainty”, University of Akron, Akron, Ohio.
11. (May 2017) “Multiscale Simulation of Powder Bed Fusion Additive Manufacturing Processes”, Huazhong University of Science and Technology, Wuhan, China.
12. (July 2015) “Reliable Multiscale Simulation under Uncertainty”, Shanghai Jiao Tong University, Shanghai, China.
13. (July 2015) “Simulation Based Design of Phase Change Materials”, Shanghai University, Shanghai, China.
14. (July 2015) “Reliable Multiscale Simulation under Uncertainty”, East China University of Science and Technology, Shanghai, China.
15. (June 2015) “Simulation Based Design of Phase Change Materials”, Tsinghua University, Beijing, China.
16. (March 2014) “Computer-Aided Design of Phase Change Materials”, Seoul National University, Seoul, South Korea.
17. (November 2011) “Geometric Modeling in Computer-Aided Nano-Design”, State Key Laboratory of Computer Graphics and Computer-Aided Design, Zhejiang University, China.
18. (August 2010) “Mosaic Representation of Heterogeneous Geometries”, Defense Advanced Research Projects Agency, Arlington, Virginia.

19. (January 2009) “Geometric Modeling in Computer-Aided Nano-Design”, University of South Florida, Tampa, Florida.
20. (February 2008) “Experiencing Information Integration in Modeling and Simulation”, Texas A&M University, College Station, Texas.
21. (April 2007) “Experiencing Information Integration in Modeling and Simulation”, University of Virginia, Charlottesville, Virginia.
22. (November 2006) “Multiscale Geometric Modeling for Computer-Aided Nano-Design”, Defense Advanced Research Projects Agency, Arlington, Virginia.
23. (August 2004) “Interval Geometric Modeling under Uncertainty”, Argonne National Laboratory, Argonne, Illinois.
24. (May 2004) “Lean Information Engineering for Interoperable Data Sharing for e-Design”, ANSYS, Canonsburg, Pennsylvania.
25. (October 2003) “e-Design Infrastructure”, IBM Thomas J. Watson Research Center, Hawthorn, New York.
26. (August 2003) “UL-PML: Distributed Data Modeling”, Tank-automotive and Armaments Command (TACOM)- National Automotive Center (NAC), Warren, Michigan.
27. (August 2003) “UL-PML: Distributed Data Modeling”, DaimlerChrysler R&D, Auburn Hills, Michigan.
28. (June 2003) “UL-PML scheme: A distributed CAD data model for collaborative design”, ALCOA Technology Center, Alcoa Center, Pennsylvania.
29. (October 2002) “Constraint-Enabled Distributed Data Modeling”, Wright-Patterson Air Force Research Laboratory & Ball Aerospace, Dayton, Ohio.

5. Other Presentations

1. (May 2019 – short course) “Cyber-Physical Systems and Intelligent Manufacturing”, South China University of Technology, Guangzhou, China.
2. (June 2016 – short course) “Computer-Aided Nano-Engineering”, Tsinghua University, Beijing, China.
3. (March 2014 – short course) “Stochastic Modeling and Simulation”, Korea Agency for Defense Development, Seoul, South Korea.
4. (May 2012 – intensive Ph.D. course) “Computer-Aided Nano-Engineering”, Tallinn University of Technology, Tallinn, Estonia.
5. (November 2011 – short course) “Uncertainty Quantification and Analysis in Systems Modeling and Simulation”, Huazhong University of Science and Technology, Wuhan, China.

E. Societal and Policy Impacts

1. Speaker, ASME Digital Engineering Webinar, “Technology Modernization and Its Impact on Industry and Workforce”, February 15, 2022
2. Interview, Automation World, “Experts Weigh In On the Impact of Data”, November 26, 2018
3. Keynote Speaker, Mount Jade Science and Technology Association South East Conference, November 10, 2018
4. Feature Article, Mechanical Engineering Magazine, “Living in the Material World”, August 2017

5. Cover Story, Mechanical Engineering Magazine, “CAD on Nanoscale”, August 2014
6. Mentor, Georgia Intern-Fellowships for Teachers Program, 2015, 2016
7. Judge, Seminole County Science, Math and Engineering Fair, February 14, 2009

F. Other Professional Activities

a. Program Reviews

1. U.S. National Science Foundation Engineering Education and Centers (NSF EEC), 2011–2014
2. IISE Manufacturing and Design Division Award Reviewer, 2023
3. ASME International Mechanical Engineering Congress & Exposition NSF Student Travel Grant Reviewer, 2011

b. Consulting

1. Marsh & Bellofram, Newell, WV. Design quality and international business, 2001
2. PowerShift Corp, Pittsburgh, PA. Design of gear shifting, 2001

V. Education

A. Courses Taught

a. Georgia Tech

1. ME 2016 Computing Techniques
2. ME 4041 Computer Graphics & Computer-Aided Design
3. ME 4042 Interactive CAD/CAE
4. ME 4182 Capstone Design
5. VIP 2601/3601/4601/6601 Quantum Engineering
6. ME 6104 Computer-Aided Design
7. ME 8813 Machine Learning Fundamentals for Mechanical Engineering
8. ME 8813 Computational Nano-Engineering

b. Univ. of Central Florida

1. ESI 4628 IE Computer Applications
2. ESI 6217 Statistical Aspects of Simulation
3. ESI 6532 Object Oriented Simulation

c. Univ. of Pittsburgh

1. IE 1051 Engineering Product Design
2. IE 2006 Introduction to Manufacturing Systems

B. Individual Student Guidance

1. Ph.D. Students

a. Graduated Ph.D. Students

1. Hillsman, Cyrus
Major: Industrial Engineering
Graduation: Fall 2009 from UCF
Dissertation Title: An analogy based costing system for injection molds based upon geometry similarity with wavelets
Current position: Senior Quality Assurance Engineer, Defense Contract Management Agency
2. Batarseh, Ola
Major: Industrial Engineering
Graduation: Summer 2010 from UCF
Dissertation Title: An interval based approach to model uncertainties in discrete-event simulation
Recipient of 2010 Institute for Operations Research and the Management Sciences (INFORMS) Simulation Society Committee on Underrepresented Minorities and Women Award
Current position: Solutions Architect, Dassault Systemes
3. Huang, Wei
Major: Mechanical Engineering
Graduation: Summer 2014
Dissertation Title: Surfacelet-based heterogeneous materials modeling
Current position: Research Engineer, Hewlett-Packard (HP) Labs
4. He, Lijuan
Major: Mechanical Engineering
Graduation: Summer 2015
Dissertation Title: Multiple phase transition path and verifiable saddle point search in computer aided nano design
Recipient of 2015 Integrated Computational Materials Engineering Congress Best Poster Award
Current position: Applied Scientist, Amazon
5. Tallman, Aaron
Major: Materials Science & Engineering
Graduation: Summer 2018
Co-Advisor: David L. McDowell
Dissertation Title: Informing bcc Fe multiscale modeling hierarchies using structural uncertainty quantification
Current position: Assistant Professor, Florida International University
6. Tran, Anh
Major: Mechanical Engineering
Graduation: Fall 2018
Dissertation Title: Multiscale uncertainty quantification for physics-based data-driven materials design and optimization
Recipient of 2020 ASME CIE Best Conference Paper Award
Current position: Senior Research Staff, Sandia National Laboratories
7. Song, Ji-Hyeon
Major: Mechanical Engineering
Graduation: Spring 2019
Co-Advisor: Sung-Hoon Ahn

Dissertation Title: A nanoparticle laser patterning process to fabricate flexible electronics
Recipient of 2019 Annual Conference of Computational Design and Engineering Best Poster Award

Current position: Assistant Professor, Dankook University

8. Lu, Yanglong

Major: Mechanical Engineering

Graduation: Fall 2020

Dissertation Title: Physics based compressive sensing for additive manufacturing process monitoring

Recipient of 2021 ASME Computers & Information in Engineering Best Dissertation Award; 2017 ASME Design for Manufacturing and Life Cycle Conference Student Poster Competition Award

Current position: Assistant Professor, Hong Kong University of Science and Technology

9. Sestito, Jesse

Major: Mechanical Engineering

Graduation: Spring 2021

Co-Advisor: Tequila Harris

Dissertation Title: Multiscale modeling and microstructure design of biodegradable polymeric scaffolds

Current position: Assistant Professor, Valparaiso University

10. Liu, Dehao

Major: Mechanical Engineering

Graduation: Summer 2021

Dissertation Title: Investigation of process-structure relationship for additive manufacturing with multiphysics simulation and physics-constrained machine learning

Current position: Assistant Professor, State University of New York at Binghamton

11. Kempner, Michaela

Major: Mechanical Engineering

Graduation: Fall 2022

Dissertation Title: Multi-fidelity Bayesian optimization for efficient materials design

Current position: Systems Engineer, Sierra Space

b. In Process Ph.D. Students

1. Malashkhia, Luka

Major: Mechanical Engineering

Semester Advisement Began: Fall 2019

Tentative Dissertation Title: Data-driven control for cyber-physical systems design

Expected Graduation: Fall 2024

2. Kim, Jungin

Major: Mechanical Engineering

Semester Advisement Began: Fall 2021

Tentative Dissertation Title: Quantum optimization algorithms

Expected Graduation: Summer 2025

3. Hong, Sungjin

Major: Mechanical Engineering

Co-Advisor: Sung-Hoon Ahn

Semester Advisement Began: Fall 2022

Tentative Dissertation Title: Physics-based compressive sensing and physics-constrained dictionary learning for manufacturing process monitoring

Expected Graduation: Fall 2024

4. Sul, Jinhwan
Major: Mechanical Engineering
Semester Advisement Began: Fall 2023
Tentative Dissertation Title: Quantum scientific computing algorithms
Expected Graduation: Summer 2027
5. Choi, Eunsik
Major: Mechanical Engineering
Semester Advisement Began: Fall 2023
Tentative Dissertation Title: Quantum machine learning
Expected Graduation: Summer 2027

2. M.S. Students

a. Graduated M.S. Students

1. Hamza, Heba
Major: Industrial Engineering (non-thesis)
Graduation: Summer 2007 from UCF
Research project: Modeling and simulation of reverse logistics in supply chain
2. Hanayneh, Leen
Major: Industrial Engineering (non-thesis)
Graduation: Fall 2008 from UCF
Research project: CAD data exchange and interoperability
Current position: Senior Risk Advisory Consultant, Ernst & Young
3. Wang, Yiwen
Major: Industrial Engineering (non-thesis)
Graduation: Spring 2009 from UCF
Research project: CAD data exchange and interoperability
Current position: Design Engineer, Aero Shade Technologies, Inc.
4. Qi, Cheng
Major: Industrial Engineering (non-thesis)
Graduation: Summer 2009 from UCF
Research project: Geometric modeling for computer-aided nano-design
Current position: Engineer, Siemens
5. Tessier, Sean
Major: Mechanical Engineering
Graduation: Summer 2011
Thesis title: Ontology-based approach to enable CAD feature interoperability
Current position: Design Engineer, ASML
6. Crnkic, Edin
Major: Mechanical Engineering
Graduation: Summer 2012
Thesis Title: Geometry-guided phase transition pathway and stable structure search for crystals
Current position: Engineer, Ford Motor Company
7. He, Lijuan
Major: Mechanical Engineering
Graduation: Summer 2013
Thesis Title: A global search algorithm for phase transition pathways in computer-aided nano-design

8. Gloss, Thomas Chris
Major: Mechanical Engineering (non-thesis)
Graduation: Summer 2013
Research project: First-principles simulation of graphene-CNT matrix
Current position: Project Engineer, Cosmodyne
9. Blumer, Joel
Major: Mechanical Engineering
Co-Advisor: David L. McDowell
Graduation: Spring 2015
Thesis Title: Cross-scale model validation with aleatory and epistemic uncertainty
Current position: Engineer, Sandia National Laboratories
10. Seligsohn, Erin
Major: Mechanical Engineering (non-thesis)
Graduation: Spring 2016
Research project: Design optimization and design decision making
Current position: Engineer, Caterpillar Inc.
11. Chan, Siu L.
Major: Mechanical Engineering (non-thesis)
Graduation: Spring 2017
Research project: Data analytics for manufacturing cost estimation
Current position: Founder, Chan Engineering
12. Yoo, Dong-Yeon
Major: Mechanical Engineering
Graduation: Summer 2018
Thesis Title: Simulation based design of Lithium ion battery configuration using Bayesian optimization
Current position: Engineer, General Motors
13. Do, Youndo
Major: Mechanical Engineering (non-thesis)
Graduation: Spring 2020
Research project: Trust quantification for cyber-physical systems design
Current position: AI Engineer, Netmarble

3. Undergraduate Students

1. Tarek Kurdy (Spring 2006)
Research Project: Product lifecycle management
2. Ketan Parmar (Fall 2006)
Research Project: Product lifecycle management
3. Erica Gilbert (Fall 2008)
Research Project: Social networks in collaborative design and product lifecycle management
4. William Casey McIntyre (Fall 2008)
Research Project: Computer-aided nano-design
5. Lauren Cavette (Spring 2009)
Research Project: Creativity in engineering design
6. Thomas Chris Gloss (Summer-Fall 2010)
Research Project: First-principles simulation
7. Ainonehi Steve Aikhuele (Fall 2010)
Research Project: Graphic Processing Units in CAE

8. David Yang (Spring 2011)
Research Project: Graphic Processing Units in Matlab
9. Wei Chang (Fall 2011)
Research Project: Nanoscale simulation
10. James Marshall Shingler (Spring 2012)
Research Project: Nanomaterials applications in solar energy
11. Lirong Fu (Summer 2012)
Research Project: Phase transition pathway search
12. Stewart Hall (Fall 2012)
Research Project: Large scale 3D visualization
13. Carlos Alas (Spring 2013)
Research Project: Computational design of batteries
14. Erin Seligsohn (Fall 2014)
Research Project: Risk perception in product design
15. Muiyang Guo (Summer 2014, Fall 2014)
Research Project: Design of color changing paint materials
16. Sui L. Chan (Spring 2015, Fall 2015, Spring 2016)
Research Project: 3D printing process monitoring
17. Ming H. Ko (Spring 2015, Fall 2015, Spring 2016)
Research Project: 3D printing process monitoring
18. Hyo Kyoum Kim (Spring 2015, Summer 2015, Spring 2018)
Research Project: 3D printing process monitoring
19. Thompson Bertron (Spring 2015)
Research Project: 3D printing process monitoring
20. Andrew Ibrahim (Spring 2015)
Research Project: Finite element analysis of tissues and biomechanics
21. Dun Cao (Spring 2015, Summer 2015)
Research Project: Finite element analysis of tissues and biomechanics
22. Jin-Hyuk Ahn (Spring 2015, Spring 2016)
Research Project: Additive manufacturing data management
23. Chenliang Yang (Spring 2015, Summer 2015, Spring 2016)
Research Project: Additive manufacturing data management
24. Yanglong Lu (Spring 2015, Fall 2015, Spring 2016)
Research Project: Additive manufacturing data management
25. Kyungjin John Kim (Spring 2015, Summer 2015)
Research Project: Uncertainty quantification in process optimization
26. Ruonan Dai (Fall 2015, Spring 2016)
Research Project: Simulation of laser-assisted nanoparticle deposition system
27. Kweon-Hoon Choi (Fall 2015, Spring 2016)
Research Project: Simulation of laser-assisted nanoparticle deposition system
28. Tejesvin Ashok (Spring 2016)
Research Project: Big data analytics for additive manufacturing
29. Kagen Edward Wittbold (Spring 2016)
Research Project: Big data analytics for additive manufacturing

30. Vontravis Monts (Spring 2016)
Research Project: Big data analytics for manufacturing
31. Heechul Kim (Spring 2016)
Research Project: Big data analytics for manufacturing
32. Lorenzo Garcia (Summer 2016)
Research Project: 3D printer for hybrid manufacturing
33. Do-Hyun Ahn (Summer 2016)
Research Project: 3D printer for hybrid manufacturing
34. Claire Hu (Fall 2016)
Research Project: 3D printer for hybrid manufacturing
35. Alizay Shah (Fall 2016, Summer 2017, Spring 2020)
Research Project: process monitoring and data analytics
36. Chenlu Li (Fall 2016)
Research Project: 3D printing process design
37. Minh N. Tran (Spring 2017)
Research Project: heart valve design optimization
38. Yufeng Wang (Spring 2017)
Research Project: Big data analytics for manufacturing
39. Lemou Tieyam (Fall 2017, Spring 2018)
Research Project: Simulation study of neurophysiological behavior in decision making under uncertainty
40. Amy Li (Fall 2018)
Research Project: Heart valve design optimization
41. Blake Castleman (Spring 2019)
Research Project: Scalable uncertainty quantification
42. Mary Thatcher (Spring 2019, Fall 2019)
Research Project: Simulation study of biodegradable scaffolds
43. Robert Dunning (Spring 2019, Fall 2019, Spring 2020, Fall 2022)
Research Project: Molecular dynamics simulation of sintering process
44. Rafael Maldonado (Fall 2019)
Research Project: 3D printing process planning with implicit surface modeling
45. Pranav Pusarla (Spring 2020, Fall 2020, Spring 2021)
Research Project: Physics-constrained machine learning
46. Louis Cardot (Fall 2020)
Research Project: 3D printing process planning with implicit surface modeling
47. Johnson Ngo (Fall 2020, Spring-Fall 2021, Spring-Summer 2022)
Research Project: 3D printing process planning with implicit surface modeling
48. Yash Patel (Fall 2020, Spring 2021)
Research Project: Physics-constrained machine learning
49. Divyesh Ved (Fall 2021)
Research Project: Design of radiation shield in cardiac catheterization laboratory
50. Rohan Punamiya (Fall 2021)
Research Project: Design of radiation shield in cardiac catheterization laboratory
51. Eric Son (Spring 2022)
Research Project: Structural optimization of metamaterials

52. Shuaiwen Huang (Spring 2022)
Research Project: Structural optimization of metamaterials
53. Pablo Cembellin (Spring 2023)
Research Project: Quantum machine learning
54. Beatriz Izquierdo Gonzalez (Spring 2023)
Research Project: Quantum machine learning
55. Hector Lopez Sanchez (Spring 2023)
Research Project: Quantum optimization algorithm

4. Service on Thesis or Dissertation Committees

a. Internal

Ph.D. Dissertation

Name	School	Advisor	Date
Joshua Lewis	Modeling & Simulation (UCF)	Michael Proctor	SUM 2006
Jeffrey Dawson	Industrial Engineering (UCF)	Luis Rabelo	SUM 2006
Karla Moore	Industrial Engineering (UCF)	Luis Rabelo	SPR 2008
Tareq Ahram	Industrial Engineering (UCF)	Pamela McCauley-Bush	FAL 2008
Anirudh Rudraraju	Mechanical Engineering	Suman Das	SUM 2013
Xiaoyu Ding	Mechanical Engineering	Tequila Harris	SPR 2014
Sima Didari	Mechanical Engineering	Tequila Harris	SPR 2014
Jungyoul Lim	Mechanical Engineering	Kok-Meng Lee	SUM 2014
Alexander Moore	Nuclear Engineering	Chaitanya Deo	SPR 2016
Sang-In Park	Mechanical Engineering	David Rosen	SUM 2016
Yitao Liu	Mechanical Engineering	Roger Jiao	SUM 2016
Richard Hoffman	Nuclear Engineering	Chaitanya Deo	FAL 2016
Min Li	Mechanical Engineering	Kok-Meng Lee	FAL 2017
Chun-Yeon Lin	Mechanical Engineering	Kok-Meng Lee	FAL 2017
Ruoyu Song	Mechanical Engineering	Cassandra Telenko	SPR 2019
Christine Taylor	Mechanical Engineering	Suresh Sitaraman	SPR 2019
Shen Zhang	Electrical & Computer Engineering	Thomas Habetler	SPR 2019
Jacob Startt	Nuclear Engineering	Chaitanya Deo	SPR 2020
Gary Whelan	Materials Science & Engineering	David McDowell	FAL 2020
Chong Ye	Mechanical Engineering	Suresh Sitaraman	SPR 2021
Sung-Kun Hwang	Mechanical Engineering	Seung-Kyum Choi	SPR 2021
John Miers	Mechanical Engineering	Christopher Saldana	SUM 2021
Hongzhen Tian	Industrial & Systems Engineering	Chuck Zhang & Yajun Mei	SUM 2021
Chad Hume	Mechanical Engineering	David Rosen	SPR 2022
Yunpei Yang	Mechanical Engineering	Jonathan Colton	SPR 2022
Pan Zou	Mechanical Engineering	Roger Jiao	SUM 2022

M.S. Thesis

Name	School	Advisor	Date
Brandy Heyde	Industrial Engineering (UCF)	Charles Reilly	SPR 2008
Justin Gambon	Mechanical Engineering	Suman Das	FAL 2012
Alexander Moore	Nuclear Engineering	Chaitanya Deo	FAL 2013
Mahmoud Alzahrani	Mechanical Engineering	Seung-Kyum Choi	SUM 2014
Sung-Kun Hwang	Mechanical Engineering	Seung-Kyum Choi	FAL 2015
Kyle E. Murdock	Biomedical Engineering	Wei Sun	SUM 2016
William D. Martin	Mechanical Engineering	Cassandra Telenko	FAL 2017
Michael McCracken	Mechanical Engineering	Chuck Zhang	FAL 2019
Ryan Errthum	Mechanical Engineering	Rudy Gleason	SPR 2022

b. External			
Name	School	Advisor	Date
Guiping Hu	University of Pittsburgh	Bopaya Bidanda	FAL 2008
Loc Ha	University of Sydney	Hao Zhang	FAL 2017

5. Mentorship of Postdoctoral Fellows or Visiting Scholars

a. Postdoctoral Fellows

1. Shevtshenko, Eduard
Duration: Fall 2009 to Spring 2010
Research Project: Knowledge discovery for decision making in the collaborative networks of enterprises
Current position: Associate Professor, University of Tartu
2. Lu, Yanglong
Duration: Spring 2021 to Summer 2021
Research Project: Structural and topology optimization of metamaterials
Current position: Assistant Professor, Hong Kong University of Science and Technology

b. Visiting Scholars

1. Li, Jianhua
Duration: Fall 2011 to Summer 2012
Research Project: Multiscale simulation with GPU
Current position: Associate Professor, East China University of Science and Technology
2. He, Bin
Duration: Spring 2014 to Fall 2014
Research Project: Sustainability and product life cycle assessment
Current position: Professor, Shanghai University
3. Zhang, Baoqiang
Duration: Fall 2017 to Summer 2018
Research Project: Uncertainty quantification in system dynamics modeling
Current position: Associate Professor, Xiamen University
4. Aydogdu, Ibrahim
Duration: Summer 2022 to Summer 2023
Research Project: Scalable Bayesian optimization
Current position: Associate Professor, Akdeniz University

c. Visiting Ph.D. Students²

1. Hu, Jie
Duration: Fall 2011 to Summer 2013
Home Institution: Hunan University
Research Project: Constraint satisfaction problem and set-based design
Current position: Manager, SGMW Inc.
2. Grimm, Marco
Duration: March 2013 to May 2013
Home Institution: Technical University of Darmstadt
Research Project: Conceptual design of cyber-physical system architecture

²These are international students who studied in Dr. Wang's research group as part of exchange programs or as a means to fulfill degree requirements at their home institutions.

3. Wu, Haixi
Duration: Fall 2014 to Summer 2015
Home Institution: Zhejiang University
Research Project: In-situ process monitoring for additive manufacturing
Current position: Data Scientist, Tencent Ltd.
4. Liu, Jie
Duration: Fall 2016 to Summer 2017
Home Institution: Huazhong University of Science and Technology
Research Project: Machine health condition monitoring and diagnostics
Current position: Associate Professor, Huazhong University of Science and Technology
5. Zhou, Qi
Duration: Fall 2016 to Summer 2017
Home Institution: Huazhong University of Science and Technology
Research Project: Multi-fidelity metamodeling and design optimization
Current position: Associate Professor, Huazhong University of Science and Technology
6. Cao, Longchao
Duration: Fall 2017 to Summer 2018
Home Institution: Huazhong University of Science and Technology
Research Project: Multi-physics simulation of directional solidification in welding
Current position: Professor, Wuhan Textile University
7. Shu, Leshi
Duration: Fall 2018 to Summer 2019
Home Institution: Huazhong University of Science and Technology
Research Project: Multi-fidelity multi-objective Bayesian optimization
Current position: Postdoc, Huazhong University of Science and Technology
8. Zhang, Jianming
Duration: Fall 2018 to Summer 2019
Home Institution: South China University of Technology
Research Project: Process scheduling and optimization in additive manufacturing
9. Zhang, Zhehao
Duration: Spring 2020 to Fall 2021
Home Institution: Hunan University
Research Project: Process monitoring and control in laser welding
10. Lee, Yong-Ho
Duration: Fall 2021 to Spring 2022
Home Institution: Sungkyunkwan University
Research Project: Digital twins of additive manufacturing
11. Yang, Sang-Min
Duration: Fall 2021 to Spring 2022
Home Institution: Ulsan National Institute of Science and Technology
Research Project: Physics-informed machine learning

d. Visiting Undergraduate Students³

1. Alhat, Devendra (Summer 2007)
Home Institution: India Institute of Technology, Bombay, India
Research Project: Computer-aided nano-design
2. Fagundes, Kilder C. (Summer 2015)
Home Institution: Federal University of Minas Gerais, Belo Horizonte, Minas Gerais,

³These are international students who studied in Dr. Wang's research group as part of exchange programs or as a means to fulfill degree requirements at their home institutions.

- Brazil
 Research Project: Electrochromic device design and fabrication
3. Pereira, Hermano G. R. (Summer 2015)
 Home Institution: Federal University of São João del Rei, Minas Gerais, Brazil
 Research Project: Electrochromic device design and fabrication
 4. Ye, Zhiling (Summer 2015)
 Home Institution: Tsinghua University, Beijing, China
 Research Project: Multiscale simulation of laser welding
 5. Liu, Dehao (Summer 2015)
 Home Institution: Tsinghua University, Beijing, China
 Research Project: Multiscale simulation of laser welding
 6. Ribeiro, Wanderson Da Rocha (Summer 2016)
 Home Institution: Syracuse University
 Research Project: Design of hybrid manufacturing platform
 7. Valiati, Nicolas Susin (Summer 2016)
 Home Institution: University of Caxias do Sul, RS, Brazil
 Research Project: Design of hybrid manufacturing platform
 8. Xue, Boce (Summer 2016)
 Home Institution: Tsinghua University, Beijing, China
 Research Project: Design of hybrid manufacturing platform
 9. Hernandez, Olvis (Summer 2016, REU program)
 Home Institution: New Jersey Institute of Technology
 Research Project: Design of hybrid manufacturing platform
 10. Zhang, Pengfei (Summer 2017)
 Home Institution: Tsinghua University, Beijing, China
 Research Project: Simulation of additive manufacturing process
 11. Contreras, Brian (Summer 2019, REU program)
 Home Institution: Metropolitan State University of Denver
 Research Project: 3D printing process planning with implicit surface modeling
 12. Jung, Allison (Summer 2021, REU program)
 Home Institution: California Polytechnic State University
 Research Project: Data-driven 3D printing process control
 13. Shi, Owen (Summer 2022, REU program)
 Home Institution: University of Illinois at Urbana-Champaign
 Research Project: Physics-constrained Bayesian neural networks

C. Educational Innovations and Other Contributions

1. Teaching Enhancement

1. Question, Persuade, Refer (QPR) Gatekeeper Training, February 2020
2. Massive Open Online Course (MOOC) mini-hub of Lab Education, 2013
3. George W. Woodruff Teaching Fellow, Spring 2013

2. Curriculum Development

1. ME 8813, Machine Learning Fundamentals for Mechanical Engineering (New graduate special-topic course)

- A new course on artificial intelligence and machine learning, including searching, optimization and learning algorithms, supervised learning (artificial neural networks, Gaussian process), unsupervised learning (clustering, dimensionality reduction), reinforcement learning, active learning, probabilistic reasoning (Bayesian belief network, MCMC, Markov models)*
2. ME 8813, Computational Nano-Engineering (New graduate special-topic course)
A new course on modeling and simulation, including nanoscale geometric modeling and visualization, heterogeneous materials modeling, minimum and saddle point search algorithms, and multi-scale simulations (quantum Monte Carlo, density functional theory, molecular dynamics, kinetic Monte Carlo, phase field, quasi-continuum, coarse-grain molecular dynamics)
 3. VIP 2601/3601/4601/6601 Quantum Engineering (New Vertically Integrated Project course for undergraduate and graduate)
A new VIP course to provide undergraduate and M.S. students the research experiences on quantum engineering, including quantum device design and quantum computing algorithms
 4. ME 6104, Computer-Aided Design (graduate course, *Revision*)
Developed new python-based learning modules of solid modeling, implicit surface modeling, AI for design
 5. ME 2016, Computing Techniques (ME core undergraduate course, *Revision*)
Developed new learning modules of computer architecture and IEEE standard-754

VI. Service

A. Professional Contributions

1. Editorial Board Memberships

1. Editor-in-Chief, ASME Journal of Computing and Information Science in Engineering, 2022–present
2. Associate Editor, ASME Journal of Computing and Information Science in Engineering, 2017–2022
3. Guest Editor, ASME Journal of Computational and Nonlinear Dynamics, special issue on “Sensitivity Analysis and Uncertainty Quantification”, 2018–2019
4. Guest Editor, ASME Journal of Mechanical Design, special issue on “Design of Engineered Materials and Structures”, 2017–2018
5. Guest Editor, ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Part B, special issue on “Uncertainty Quantification in Multiscale System Design and Simulation”, 2016–2017
6. Guest Editor, ASME Journal of Mechanical Design, special issue on “Data-Driven Design”, 2016–2017
7. Guest Editor, Computer-Aided Design, special issue on “Computer-Aided Multiscale Materials and Product Design”, 2011–2012

2. Society Offices, Activities, and Membership

1. ASME Intelligent Manufacturing Technology Group leadership team, 2021–present
2. Quantum Economic Development Consortium Workforce Technical Advisory Committee, 2023–present

3. ASME Digitalization Technology Group leadership team, 2021-2023
4. ASTM Additive Manufacturing Security (WK78322) Standards Committee, member 2021–2023
5. ASME Design, Materials & Manufacturing Segment Leadership Team member, 2020
6. ASME Computers and Information in Engineering Division, Award Committee, Chair, 2020–2021
7. ASME Computers and Information in Engineering Division, Executive Committee, Chair, 2019–2020
8. ASME Computers and Information in Engineering Division, Executive Committee, Vice Chair, 2017–2019
9. ASME Computers and Information in Engineering Division, Executive Committee, Secretary, 2016–2017
10. ASME Computers and Information in Engineering Division, Executive Committee, Member at Large, 2014–2016
11. ASME Standards Subcommittee on Verification and Validation of Computational Modeling for Advanced Manufacturing (V&V 50) member, 2016
12. ASME Computers and Information in Engineering Division, Advanced Modeling and Simulation Technical Committee, Chair, 2013–2014
13. ASME Computers and Information in Engineering Division, Advanced Modeling and Simulation Technical Committee, Vice Chair, 2012–2013
14. ASME Computers and Information in Engineering Division, Advanced Modeling and Simulation Technical Committee, Secretary, 2011–2012
15. NSF Industry-University Cooperative Research Center on e-Design, Information Infrastructure Research Thrust Lead, 2003–2007

3. Organization and Chairmanship of Technical Sessions, Workshops, and Conferences

(a) Conference Organized

1. 2022 ASME/EWF International Additive Manufacturing Conference (IAM), *Program Chair*
2. 2022 ASME International Design Engineering Technical Conferences & Computers and Information in Engineering Conference (IDETC-CIE2022), *General Conference Co-Chair*
3. The 39th ASME Computers and Information in Engineering (CIE) Conference, *Conference Chair*, 2019
4. The 38th ASME Computers and Information in Engineering (CIE) Conference, *Conference Program Chair*, 2018

(b) Symposium Organized

1. The 16th World Congress on Computational Mechanics (WCCM) and 4th Pan American Congress on Computational Mechanics (PANCCM), Symposium on Quantum Scientific Computing, Lead Organizer, 2024
2. The 153rd TMS Annual Meeting and Exhibition (TMS2024), Symposium on AI/Data Informatics: Computational Model Development, Verification, Validation, and Uncertainty Quantification, Co-Organizer, 2024
3. 2022 Materials Science & Technology Conference (MS&T22), Symposium on Uncertainty Quantification in Data-Driven Materials and Process Design, Co-Organizer, 2022
4. ASME Cybersecurity in Manufacturing webinar series, Co-Organizer, 2020–2021

5. ASME International Mechanical Engineering Congress and Exposition, Symposium of Smart Cyber-Physical Systems, Lead Organizer, 2020–2021
 6. Society for Industrial and Applied Mathematics (SIAM) Conference on Computational Science and Engineering, Mini-symposium of Model Discrepancy and Model Form Error Approaches, Lead Organizer, 2017
 7. ASME Computers and Information in Engineering Conference, Symposium of Uncertainty Quantification in Simulation and Model Verification & Validation, Lead Organizer, 2013–2022
 8. ASME Computers and Information in Engineering Conference & ASME/IEEE International Conference on Mechatronic, Embedded Systems and Applications (MESA), Symposium of Smart Cyber-Physical Systems, Lead Organizer, 2018–2020
 9. ASME Computers and Information in Engineering Conference & Design Automation Conference, Symposium of Design for Resilience and Failure Recovery, Co-Organizer, 2016–2020
 10. ASME Multibody Systems, Nonlinear Dynamics, and Control Conference, Symposium of Optimization, Sensitivity Analysis, and Uncertainty Quantification in Dynamic Systems, Co-Organizer, 2017–2019
 11. ASCE Engineering Mechanics Institute Conference (EMI2016) & Probabilistic Mechanics and Reliability Conference (PMC2016), Mini-symposium of Uncertainty Quantification and Model Verification & Validation in Multiscale Simulation, Lead Organizer, 2016
 12. ASME Computers and Information in Engineering Conference, Symposium of Advanced Modeling and Simulation, Lead Organizer, 2011–2015
 13. SIAM Conference on Uncertainty Quantification, Mini-symposium of Model Form Uncertainty in Modeling, Simulation, and Analysis, Lead Organizer, 2014
 14. ASME Design Automation Conference, Special session of Design of Multiscale Engineering Systems, Co-Organizer, 2009–2012
 15. ASME Design Automation Conference, Special session of Computer Aided Nano Design, Lead Organizer, 2008
 16. ASME Design Automation Conference, Special Session of Collaborative Design, Lead Organizer, 2005–2009
- (c) International Conference Committees
1. ASCE Engineering Mechanics Institute Conference, local organization committee member, 2023
 2. International Design Conference (DESIGN), international scientific committee member, 2022–2024
 3. IEEE International Conference on Manufacturing Automation, international program committee member, 2010
 4. International Conference on Concurrent Engineering, international program committee member, 2009
 5. International Association for Management of Technology (IAMOT) International Conference on Management of Technology, local organizing committee member, 2009
- (d) International Conference Session Chaired
1. ASME International Multibody Systems, Nonlinear Dynamics, and Control Conference: Optimization, Sensitivity Analysis, and Uncertainty Quantification in Dynamic Systems session, 2017, 2018
 2. ASME Computers and Information in Engineering Conference & Design Automation Conference: Design for Resilience and Failure Recovery session, 2016, 2017, 2018

3. ASME Computers and Information in Engineering Conference: Uncertainty Quantification in Simulation and Model Verification & Validation session, 2015, 2016, 2017
4. ASME Design Automation Conference: Simulation-based Design under Uncertainty session, 2011
5. International Association for Management of Technology (IAMOT) International Conference on Management of Technology: R&D Management session, 2009
6. ASME Computers and Information in Engineering Conference: Collaborative Systems session, 2004
7. IISE Industrial Engineering Research Conference: Network-Centric Manufacturing session, 2006
8. ASME Design Automation Conference: Geometric Algorithms in Design, Manufacturing, and Rapid Prototyping sessions, 2005, 2006
9. ASME Design Automation Conference, Collaborative Design Sessions, 2005, 2009

4. Technical Journal or Conference Referee Activities

a. Journal Review

1. ACM Transactions on Cyber-Physical Systems
2. ACS Applied Nano Materials
3. Additive Manufacturing
4. Advances in Engineering Software
5. Advanced Engineering Informatics
6. AIAA Journal
7. Annals of Mathematics and Artificial Intelligence
8. Applied Physics A
9. Computational Materials Science
10. Computer-Aided Design
11. Computer-Aided Design and Applications
12. Computer and Industrial Engineering
13. Computer Methods in Applied Mechanics and Engineering
14. Computer Physics Communications
15. Engineering Optimization
16. Environmental Modeling and Assessment
17. Expert Systems with Applications
18. EURASIP Journal of Applied Signal Processing
19. Graphical Models
20. IEEE Access
21. IEEE Transactions on Automation Science and Engineering
22. IEEE Transactions on Industrial Electronics
23. IEEE Transactions on Systems, Man and Cybernetics: Systems
24. IEEE Journal of Selected Topics in Signal Processing
25. IISE Transactions
26. International Journal of Advanced Manufacturing Technology
27. International Journal of Computer Application
28. International Journal of Electronic Business Management
29. International Journal of Fatigue
30. International Journal of Manufacturing Research
31. International Journal of Physical Sciences
32. ASME Journal of Computing and Information Science in Engineering
33. ASME Journal of Mechanical Design
34. ASME Journal of Manufacturing Science and Engineering
35. Journal of Engineering Design
36. Journal of Engineering Mechanics
37. Journal of Intelligent Manufacturing
38. Journal of Manufacturing Processes
39. Journal of Manufacturing Systems
40. Journal of Uncertainty Quantification
41. JOM
42. Mathematical Problems in Engineering
43. Mechanical Systems and Signal Processing
44. Modelling and Simulation in Materials Science and Engineering
45. Proceedings of the IMechE, Part B: Journal of Engineering Manufacture
46. Proceedings of the Royal Society A
47. Reliable Computing
48. Science Asia
49. Simulation Modelling Practice and Theory
50. Structural and Multidisciplinary Optimization
51. Structural Safety

b. Conference Proceedings Review

1. American Society of Mechanical Engineers (ASME) International Design Engineering Technical Conference & Computers and Information In Engineering Conference (IDETC/CIE), 2003-2023
2. Association for Computing Machinery (ACM) Winter Simulation Conference (Winter-Sim), 2009
3. Institute of Electrical and Electronics Engineers (IEEE) International Symposium on Computational Intelligence in Robotics and Automation (CIRA), 2007

4. IEEE Vehicular Technology Conference (VTC), 2019
5. Institute of Industrial and Systems Engineers (IISE) Annual Conferences (IERC), 2006-2021
6. International Computer Aided Design Conference, 2010-2018
7. International Conference on Concurrent Engineering (CE), 2009
8. International Conference on Engineering Design (ICED), 2017–2022
9. International Conference on Engineering and Meta-Engineering (ICEME), 2010

5. Proposal Panels and Reviews

1. U.S. National Science Foundation (NSF), 2007, 2008, 2012, 2018, 2021, 2022
2. U.S. National Aeronautics and Space Administration (NASA), 2010, 2011
3. U.S. Department of Energy National Nuclear Security Administration (NNSA), 2020
4. U.S. Department of Energy REMADE Institute, 2019, 2020
5. Natural Sciences and Engineering Research Council of Canada (NSERC), 2020
6. European Research Council (ERC), 2019
7. German Research Foundation (DFG), 2020
8. Hong Kong Nano and Advanced Materials Institute (NAMI), 2011
9. Singapore Agency for Science, Technology and Research (A*STAR), 2007

6. Leadership Activities

1. ASME Digitalization Technology Group Leadership Team, 2021–2023.
2. ASME Computing and Information in Engineering (CIE) Division, Chair, 2019–2020.
3. Leadership Development
 - ASME Group Leadership Development Conference, March 1-3, 2019
 - Georgia Tech tenured faculty leadership workshop, Sept. 25-27, 2015

B. Public and Community Service

1. Mentor, Georgia Intern Fellowship for Teachers (GIFT) fellow program, 2015–2016
2. Lecturer, American Society of Mechanical Engineers Atlanta Section Professional Development, November 5, 2012
3. Adviser, Largo High School’s Career Shadowing Program (Largo, FL), April 18, 2008
4. Scholar’s Day speaker, University of Central Florida, March 29, 2008
5. Adviser, Largo High School’s Career Shadowing Program (Largo, FL), November 9, 2007

C. Institute Contributions

1. Institute Committee Service

1. Partners for the Advancement of Collaborative Engineering Education (PACE): Georgia Tech Integrator and Primary Contact, 2010–2017
2. Judge, Georgia Tech Air Product student poster competition, April 14, 2016
3. Judge, Georgia Tech Capstone Expo, Spring, 2013, Summer 2016
4. Reviewer, SAIC student paper competition, 2012
5. Judge, Georgia Tech InVenture Prize Competition, January 20, 2011
6. Judge, Georgia Tech Research and Innovation Conferences, February 8, 2010; February 8, 2011; February 7, 2012; March 13, 2014
7. Georgia Tech Undergraduate Research Affair presenter, 2015–present
8. Senior Honors Open House presenter, 2009
9. Judge, UCF Graduate Research Forum, April 2006, April 2007
10. Reviewer, UCF Undergraduate Research Journal, 2006

2. College Committee Service

1. UCF College of Engineering and Computer Science Scholarship and Awards Committee, Spring 2009

3. School Committee Service

1. ME Tenure-Track Faculty Annual Evaluation Committee, 2023–2024
2. ME Reappointment, Promotion and Tenure Committee, 2020–2022
3. ME Undergraduate Program committee, 2020–2024
4. ME Ph.D. Coursework Requirement ad hoc committee, 2021–2022
5. CSE Ph.D. Qualifying Exam Committee, 2023
6. ME Ph.D. Qualifying Exam Committees for Design, Manufacturing, and AI/ML, 2021–present
7. ME Ph.D. Qualifying Exam Committee for Computer-Aided Engineering, 2010–2021
8. ME Academic Advising committee, 2016–2019
9. ME Promotion and Tenure research area committee, 2017, 2020
10. ME Graduate Program committee, 2015–2016
11. ME Instructional Lab committee, 2009–2015

4. Program Development: Research

1. Georgia Tech Institute of Materials, Blue Ribbon Panel Committee, Spring 2019
2. Georgia Tech Institute of Materials, Blue Ribbon Panel Committee, Fall 2018

5. Program Development: Academic

1. Georgia Tech Manufacturing Institute, REU Faculty Mentor, 2016–2022
2. Georgia Tech Manufacturing Institute, International Summer Exchange Program Lecturer, Summer 2015