KATHERINE FU
ASSOCIATE PROFESSOR OF MECHANICAL ENGINEERING
UNIVERSITY OF WISCONSIN - MADISON

FEBRUARY 1, 2022

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KATHERINE FU
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UNIVERSITY OF WISCONSIN-MADISON

I. EARNED DEGREES

Degree	Major	School	Date
Ph.D.	Mechanical Engineering	Carnegie Mellon University	May 2012
M. Sc.	Mechanical Engineering	Carnegie Mellon University	May 2009
B. Sc.	Mechanical Engineering	Brown University	May 2007

II. EMPLOYMENT HISTORY

Job Title	Organization Name	From Date	To Date
Associate Professor	Mechanical Engineering, University of Wisconsin-Madison	Aug 2021	present
Adjunct Associate Professor	Mechanical Engineering, Georgia Institute of Technology	Aug 2021	present
Associate Professor	Mechanical Engineering, Georgia Institute of Technology	July 2021	Aug 2021
Assistant Professor	Mechanical Engineering, Georgia Institute of Technology (70% from 2014 – 2017, 100% from 2017 – present)	Nov 2014	June 2021
Assistant Professor	Industrial Design (30%), Georgia Institute of Technology	Nov 2014	May 2017
Postdoctoral Fellow	Singapore University of Technology and Design	Sep 2013	Aug 2014
Postdoctoral Fellow	Massachusetts Institute of Technology	Sep 2012	Aug 2013

III. HONORS AND AWARDS

International or National Awards

Award	Organization/Location	Date
ASME Design Theory and Methodology Young Investigator Award	ASME, New York, NY	Apr 2020
National Science Foundation (NSF) CAREER Award	NSF, Alexandria, VA	Aug 2019
ASME Journal of Mechanical Design 2018 Reviewer of the Year Award	ASME, New York, NY	Jan 2019
ASME Atlanta Section 2015 Early Career Engineer of the Year	ASME, Atlanta, GA	Jan 2015
ASME Design Engineering Division Design Education Committee (DEC) – Certificate of Appreciation for Service to Coordinate and Conduct the Junior Girl Scout Workshop on Mechanical and Design Engineering	ASME, New York, NY	Aug 2015
Reviewer's Favourite Award – International Conference on Engineering Design 2013	Design Society, Copenhagen, DK	Jan 2013
Best Design Cognition Paper Prize – Design Computing and Cognition Conference (DCC)	Texas A&M University, College Station, Texas USA	Jan 2012
Best Paper Award, 2012 ASME Design Theory and Methodology (DTM) Conference	ASME, New York, NY	Jan 2012
Achievement Rewards For College Scientists (ARCS) Foundation Scholar	ARCS, Pittsburgh, PA	Sep 2007

Institute or School Awards

Award	Organization/Location	Date
GT Class of 1934 Outstanding Service Award	Georgia Institute of Technology	Apr 2020
GT LGBTQIA Faculty/Staff Leadership Award	Georgia Institute of Technology	Apr 2019
GT CTL Thank a Teacher Award (2)	Georgia Institute of Technology	Dec 2018
GT Diversity Champion 2018 Faculty Award Winner	Georgia Institute of Technology	Sep 2018
GT GWW Teaching Fellow	Georgia Institute of Technology	Aug 2016
GT CTL Class of 1969 Teaching Fellow	Georgia Institute of Technology	Aug 2015
John and Claire Bertucci Graduate Fellowship	Carnegie Mellon University, Pittsburgh, PA	Sep 2010

IV. RESEARCH, SCHOLARSHIP, AND CREATIVE ACTIVITIES

A. PUBLISHED BOOKS, BOOK CHAPTERS, AND EDITED VOLUMES

[A.1] Fu, K., Schunn, C.D., 2016, Open Innovation through Strategic Design-by-Analogy. Markman A, *Open Innovation: Academic and Practical Perspectives on the Journey from Idea to Market*, Oxford University Press.

B. REFEREED PUBLICATIONS AND SUBMITTED ARTICLES

B1. Published and Accepted Journal Articles

[B1.29] Song, H., and Fu, K, 2022, "Design-by-Analogy: Effects of Exploration-Based Approach on Analogical Retrievals and Design Outcomes." ASME. *J. Mech. Des*. doi: https://doi.org/10.1115/1.4053683.

[B1.28] Bonilla-Alicea, R.J., Fu, K.,2022, "Social life-cycle assessment (S-LCA) of residential rooftop solar panels using challenge-derived framework." *Energ Sustain Soc* **12,** 7. https://doi.org/10.1186/s13705-022-00332-w.

[B1.27] Schauer, A. M., Fillingim, K. B., and Fu, K., 2022, "Impact of Timing in the Design Process on Students' Application of Design for Additive Manufacturing Heuristics." ASME. *J. Mech. Des*. June 2022; 144(6): 062301. https://doi.org/10.1115/1.4053281.

[B1.26] Murphy, A.R., Floresca, E.A., Fu, K., Linsey, J.S., 2022, Comparing parallel and iterative prototyping strategies during engineering design. *Research in Engineering Design.* https://doi.org/10.1007/s00163-021-00376-7.

[B1.25] Murphy, A.R., Floresca, E.A., Fu, K., Linsey, J.S., "Comparing Parallel and Iterative Strategies for Physical Prototyping in Engineering Design", *Research in Engineering Design*, in press.

[B1.24] **Bonilla-Alicea, R.**, Fu, K., "Evaluation of a Challenge-Derived Social Lifecycle Assessment (S-LCA) Framework", *International Journal of Sustainable Engineering*, in press.

[B1.23] **Lee, B., Feldman, B.,** Fu, K., "Speech2Mindmap: Testing the Accuracy of Unsupervised Automatic Mindmapping Technology with Speech Recognition", *ASME Journal of Mechanical Design*, Accepted June 2021, in press.

[B1.22] **Paige, M.A., Fillingim, K.B.**, **Murphy, A.R., Song, H., Reichling, C.J.,** Fu, K., 2021, "Examining the Effects of Mood and Intuition on Design Outcomes", *International Journal of Design Creativity and Innovation*, (in press).

[B1.21] **Fillingim, K.B., Shapiro, H., Reichling, C.J.,** Fu, K., 2021, "The Effect of Physical Activity through Virtual Reality on Design Creativity", *Artificial Intelligence for Engineering Design, Analysis and Manufacturing*, 1-17. doi:10.1017/S0890060420000529

[B1.20] **Fillingim, K.B., Nwaeri, R.O.**, Paredis, C.J.J., Rosen, D., Fu, K., 2020, "Examining the effect of design for additive manufacturing rule presentation on part redesign quality", Journal of Engineering Design, doi: 10.1080/09544828.2020.1789569.

[B1.19] **Song, H., Evans, J.,** Fu, K., 2020, "An Exploration-Based Approach to Computationally Supported Design-by-Analogy using D3*", Artificial Intelligence for Engineering Design, Analysis and Manufacturing*, 34(4), 444-457. doi:10.1017/S0890060420000220.

[B1.18] **Fillingim, K.B.**, **Shapiro, H.**, Paredis, C.J., Fu, K., "Process Heuristics: Extraction, Analysis, and Repository Considerations", *IEEE Systems Journal*, pp. 1-12, doi: 10.1109/JSYST.2019.2959538.

[B1.17] **Fillingim, K.B.**, **Nwaeri, R.**, **Borja, F.**, Fu, K., Paredis, C.J., 2019. "Design Heuristics: Extraction and Classification Methods with Jet Propulsion Laboratory's Architecture Team", *ASME Journal of Mechanical Design*, pp.1-48, doi:10.1115/1.4044160.

[B1.16] Fu, K., Sylcott, B., **Das, K.**, "Using fMRI to Deepen our Understanding of Design Fixation", *Design Science Journal*, 5, 2019.

[B1.15] **Bonilla-Alicea, R.J.** and Fu, K., 2019, "Systematic Map of the Social Impact Assessment Field", *Sustainability*, *11*(15), p.4106.

[B1.14] **Song, H.**, Fu, K., 2019, "Design-by-Analogy: Exploring for Analogical Inspiration With Behavior, Material, and Component-Based Structural Representation of Patent Databases", *ASME Journal of Computing and Information Science in Engineering*, 19(2), p.021014.

[B1.13] Newton, S., Alemdar, M., Hilton, E., Linsey, J., Fu, K., 2018, "Incorporating Industrial Design Pedagogy into a Mechanical Engineering Graphics Course: A Discipline-Based Education Research (DBER) Approach," *International Journal of STEM Education*, 5: 29. https://doi.org/10.1186/s40594-018-0122-7.

[B1.12] **Song, H.-I**., Lopez, R., Linsey, J. S., Fu, K., 2018, "Characterizing the Effects of Multiple Analogues and Extraneous Information in Design-by-Analogy", *ASME Journal of Mechanical Design*, 140(3):031101-031101-13. doi:10.1115/1.4038565.

[B1.11] Kirkman, R., Fu, K., **Lee, B**., 2017, "Teaching Ethics as Design", *Advances in Engineering Education*, v6 n2, Fall 2017.

[B1.10] Fu, K., Yang, M., and Wood, K. L., 2016, "Design Principles: Literature Review, Analysis, and Future Directions," *ASME Journal of Mechanical Design*, Special Issue in Design Theory and Methodology, 138(10):101103-101103-13, DOI: 10.1115/1.4034105.

[B1.9] Fu, K., Murphy, J., Yang, M., Otto, K., Jensen, D., Wood, K.L., 2014, "Design-by-Analogy: Experimental Evaluation of a Functional Analogy Search Methodology for Concept Generation Improvement", *Research in Engineering Design*, DOI: 10.1007/s00163-014-0186-4.

[B1.8] Fu, K., Moreno, D., Yang, M. C., Wood, K. L., 2014, "Bio-Inspired Design: An Overview Investigating Open Questions from the Broader Field of Design-by-Analogy," *ASME Journal of Mechanical Design, Special Issue 2014: Biologically Inspired Design*, 136(11), 111102, DOI: 10.1115/1.4028289

[B1.7] Murphy, J., Fu, K., Otto, K., Yang, M., Jensen, D., Wood, K., 2014, "Function Based Design-by-Analogy: A Functional Vector Approach to Analogical Search," *ASME Journal of Mechanical Design*, 136(10) 101102, DOI: 10.1115/1.4028093.

[B1.6] Fu, K., Chan, J., Schunn, C., Cagan, J., and Kotovsky, K., 2013, "Expert Representation of Design Repository Space: A Comparison to and Validation of Algorithmic Output," *Design Studies*, 34(6), 729-762, DOI: 10.1016/j.destud.2013.06.002.

[B1.5] Fu, K., Cagan, J., Kotovsky, K., and Wood, K., 2013, "Discovering Structure In Design Databases Through Functional And Surface Based Mapping," *ASME Journal of Mechanical Design*, 135 (3), 031006.

[B1.4] Fu, K., Chan, J., Cagan, J., Kotovsky, K., Schunn, C., and Wood, K., 2013, "The Meaning of "Near" and "Far": The Impact of Structuring Design Databases and the Effect of Distance of Analogy on Design Output," *ASME Journal of Mechanical Design*, 135 (2), 021007.

[B1.3] Chan, J., Fu, K., Schunn, C., Cagan, J., Wood, K., and Kotovsky, K., 2011, "On the Benefits and Pitfalls of Analogies for Innovative Design: Ideation Performance Based on Analogical Distance, Commonness, and Modality of Examples," *ASME Journal of Mechanical Design*, 133 (8), 081004.

[B1.2] Fu, K., Cagan, J., and Kotovsky, K., 2010, "Design Team Convergence: The Influence of Example Solution Quality," *ASME Journal of Mechanical Design*, 132 (11), 111005.

[B1.1] Linsey, J.S., Tseng, I., Fu, K., Cagan, J., Wood, K. L., and Schunn, C. D., 2010, "A Study of Design Fixation, Its Mitigation and Perception in Design Faculty," *ASME Journal of Mechanical Design*, 132 (4), 041003.

B2. Conference Presentation with Proceedings (Refereed)

[B2.25] Murphy, A.R**.**, Floresca, E.A., Fu, K., Linsey, J.S., 2021, "Student Perceptions of an Iterative or Parallel Prototyping Strategy During a Design Competition" Submitted to the Proceedings of the 2021 ASEE Annual Conference & Exposition, Long Beach, CA, June 27-30, 2021.

[B2.24] **Gamero, D.**, Dugenske, A., Kurfess, T., Saldana, C., Fu, K., 2021,"SQL and NoSQL Databases For Cyber Physical Production Systems In Internet Of Things For Manufacturing (IoTfM)," Proceedings of the ASME 2021 16th International, Manufacturing Science and Engineering Conference, MSEC2021, June, Virtual, Online.

[B2.23] De Vries, C., Fu, K., Starkey, E., Toh, C., Damen, N., Joshi, S., Sylcott, B., Jacobson, K., 2020, "Broadening Participation: Over Ten Years of Outreach within the IDETC DED Community," Proceedings of the ASME 2020 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference. Volume 3: 17th International Conference on Design Education (DEC). Virtual, Online. August 17–19, 2020. V003T03A003. ASME. https://doi.org/10.1115/DETC2020-22687.

[B2.22] **Fillingim, K.B.**, **Nwaeri, R.**, **Borja, F**., Fu, K., Paredis, C.J., 2018,"Design Heuristics: Analysis and Synthesis From Jet Propulsion Laboratory's Architecture Team,"*ASME International Design Engineering Technical Conferences*, *Volume 7: 30th International Conference on Design Theory and Methodology*, doi:10.1115/DETC2018-85584.

[B2.21] **Song H.**, Fu, K., 2018, "Approaches for Supporting Exploration for Analogical Inspiration With Behavior, Material and Component Based Structural Representations of Patent Databases," *ASME International Design Engineering Technical Conferences*, *Volume 2A: 44th Design Automation Conference*, doi:10.1115/DETC2018-85591.

[B2.20] **Fillingim, K.**, **Lee, B.,** Binder, W., Fu, K., Paredis, C., 2017, "Design Heuristics: A Conceptual Framework and Preliminary Method for Discovery," *ASME International Design Engineering Technical Conferences 2017*, Cleveland, OH.

[B2.19] Stewart, M., Fu, K., de Vries, C. M., Jacobson, L., Nagel, J. K., Jacobson, K., Hughes, A. M., 2017, "Engagement in Practice: A Process for Creating a New "Council's Own" Junior Girl Scout Badge in Mechanical Engineering*," America Society for Engineering Education Annual Conference*, Columbus, OH.

[B2.18] **Paige, M.**, Fu, K., 2017, "Spatial Demonstration Tools for Teaching Geometric Dimensioning and Tolerancing (GD&T) to First Year Undergraduate Engineering Students", *America Society for Engineering Education Annual Conference*, Columbus, OH.

[B2.17] **Broussard, K., Murphy, L.**, Fu, K., 2017, "A Descriptive Study of the Effect of K-12 Design Education on Changes in Self-Esteem," *International Conference on Engineering Design*, Vancouver, Canada.

[B2.16] **Hebbale, C.** and Fu, K., "Wearable On-Demand Oxygen Therapy," IDETC2016-59199, *ASME International Design Engineering Technical Conferences 2016*, Charlotte, NC, Aug 21-24, 2016.

[B2.15] **Cvitanic, T., Lee, B., Song, H.I.,** Fu, K., and Rosen, D., "LDA v. LSA: A Comparison of Two Computational Text Analysis Tools for the Functional Categorization of Patents," *Computational Analogy for the 2016 International Conference on Case-Based Reasoning (ICCBR-16)*, Atlanta, GA, October 31- November 2, 2016.

[B2.14] Fu, K., Yang, M., Wood, K.L., 2015, "Design Principles: The foundation of Design", *Proceedings of the ASME 2015 International Design Engineering Technical Conferences*, August 2-5, 2015, Boston, MA.

[B2.13] Fu, K., Tan, U., Teo, T. H., Soh, G. S., Wood, K. L., "Interdisciplinary Learning Through Design Activities Uniting Fundamentals of Engineering Curriculum", *Proceedings of the International Conference on Engineering Design*, July 27-30, 2015, Milan, Italy.

[B2.12] Murphy, J., Fu, K., Otto, K., Yang, M., Jensen, D., Wood, K.L., 2014, "Facilitating Design-by-Analogy: Development of a Complete Functional Vocabulary and Functional Vector Approach to Analogical Search", *Proceedings of the ASME 2014 International Design Engineering Technical Conferences*, August 17-20, 2014, Buffalo, NY.

[B2.11] Fu, K., Murphy, J., Yang, M., Otto, K., Jensen, D., Wood, K.L., 2013, "Investigating the Effect of Functionality Level of Analogical Stimulation on Design Outcomes", *Proceedings of The 13th Design Engineering Workshop*, November 28 - 30, 2013, Kitakyushu, Fukuoka, Japan.

[B2.10] Fu, K., Reid, T.N., Terpenny, J.P., Thurston, D.L., Vance, J.M., Finger, S., Wiens, G.J., Kazerounian, K., Allen, J.K., Jacobson, K., 2013, "AC 2013 - 6781: Broadening Participation: A Report On A Series Of Workshops Aimed At Building Community And Increasing The Number Of Women And Minorities In Engineering Design," *Proceedings of the America Society for Engineering Education Annual Conference*, June 23-26, Atlanta, Georgia.

[B2.9] Fu, K., Chan, J., Schunn, C., Cagan, J., Kotovsky, K., 2013," Substantiating the Basis for an Automated Design-by-Analogy Tool through Comparison to Expert Thinking," *Proceedings of the ASME 2013 International Design Engineering Technical Conferences*, August 4-7, 2013, Portland, Oregon.

[B2.8] Fu, K., Dilmore, J., Cagan, J., Dougherty Jr., C.H., 2013, "Using Design Database Structures to Characterize Freedom-to-operate in a Design Space: A Legal Case Study," *Proceedings of the International Conference on Engineering Design*, August 19-22, 2013, Seoul, South Korea.

[B2.7] Fu, K., Chan, J., Cagan, J., Kotovsky, K., Schunn, C., and Wood, K., 2012, "The Meaning of "Near" and "Far": The Impact of Structuring Design Databases and the Effect of Distance of Analogy on Design Output," *Proceedings of the ASME International Design Engineering Technical Conferences*, Chicago, IL.

[B2.6] Wood, M., Chen, P., Fu, K., Cagan, J., and Kotovsky, K., 2012, "The Role of Design Team Structure on Individual and Shared Mental Models," *Proceedings of the Conference on Design Computing and Cognition*, College Station, TX.

[B2.5] Chan, J., Fu, K., Schunn, C., Cagan, J., Wood, K., and Kotovsky, K., 2011, "On the Benefits and Pitfalls of Analogies for Innovative Design: Ideation Performance Based on Analogical Distance, Commonness, and Modality of Examples," *Proceedings of the 2011 International Conference on Engineering Design*, Copenhagen, Denmark.

[B2.4] Fu, K., Cagan, J., Kotovsky, K., 2011, "A Methodology for Discovering Structure in Design Databases," *Proceedings of the 2011 International Conference on Engineering Design*, Copenhagen, Denmark.

[B2.3] Fu, K., Cagan, J., Kotovsky, K., and Wood, K., 2011, "Discovering Structure In Design Databases Through Functional And Surface Based Mapping," *Proceedings of the ASME International Design Engineering Technical Conferences*, Washington, D.C.

[B2.2] Fu, K., Cagan, J., and Kotovsky, K., 2009, "Design Team Convergence: The Influence of Example Solution Quality," *Proceedings of the ASME International Design Engineering Technical Conferences*, San Diego, CA.

[B2.1] Linsey, J.S., Tseng, I., Fu, K., Cagan, J., and Wood, K. L., 2009, "Reducing and Perceiving Design Fixation: Initial Results from an NSF-Sponsored Workshop," *Proceedings of the 2009 International Conference on Engineering Design*, Stanford, CA.

B3. Submitted Journal Articles (with date of submission)

[B3.6] **Schauer, A., Fillingim, K.B., Pavleszek, A., Chen, M.**, Fu, K., "Comparing the Effect of Virtual and In-Person Instruction on Students' Performance in a Design for Additive Manufacturing Learning Activity", Submitted to *Advances in Engineering Education*, Fall 2021.

[B3.5] **Paige, M.A., Soni, A, Davis, A, Feldman, B., Roach, D.**, Kingsley, G., Qi, H., Fu, K., "The process and impact of a creative approach to designing active learning modules for Mechanics of Materials", Submitted to *Advances in Engineering Education*, Fall 2021.

[B3.4] **Paige, M.A., Schauer, A., Klesmith, Z., Davis, A.**, Fu, K., "The impact of hands-on Geometric Dimensioning and Tolerancing intervention activities on students in engineering design", Submitted to *Advances in Engineering Education*, Fall 2021.

[B3.3] **Gamero, D.**, Dugenske, A., Saldana, C., Kurfess, T., Fu, K., "SQL And NoSQL Databases for Cyber Physical Production Systems in Internet of Things for Manufacturing (IoTfM)", Submitted to *ASME Journal of Computing and Information Science in Engineering,* Fall 2021.

[B3.2] **Detchprohm, N., Stokes, H.**, Fu, K., "The Effect of Design Experience and Sketch/Render Quality on the Concept Generation Process in Engineering Design", Submitted to *ASME Journal of Mechanical Design*, June 17, 2021.

[B3.1] **DeWitte, L.,** Saldana, C., Kurfess, T., Fu, K., "Effect of Coaxial Nozzle Wear on Catchment Efficiency in Direct Energy Deposition Built Components", Submitted to *Journal of Manufacturing Systems,* Fall 2021.

C. OTHER PUBLICATIONS AND CREATIVE PRODUCTS

C1. Patents

[C1.1] Cheung, T; Fu, K; Jura, J; Kaushal, N; Sato, G; Theis, P. U.S. Patent No. 8096599. *Stowable Table Unit System for a Vehicle.* 2012. Washington DC: U.S. Assignee: International Truck Intellectual Property Company, LLC.

D. PRESENTATIONS

D1. Invited Conference and Workshop Presentations

[D1.11] *Invited Keynote Panel*, Fu, K., "DTM Awards Panel", ASME 2020 International Design Engineering Technical Conferences, virtual, August 17-19, 2021.

[D1.10] *Lightening Talk*, **Fillingim, K.B.**, Fu, K., "Framework for the Evolution of Heuristics in Advanced Manufacturing", Invited for ASME 2020 International Design Engineering Technical Conferences, virtual, August 16-19, 2020.

[D1.9] *Plenary Talk and Workshop*, Fu, K., "Design by Analogy Workshop", HUE Design Summit, Atlanta, GA, July 26, 2019.

[D1.8] *Invited Keynote Panel*, Fu, K., "New Perspectives on Leadership in Engineering Design", ASME Design Education Committee, International Design Engineering Technical Conferences, Anaheim, CA, August 19, 2019.

[D1.7] *Invited Keynote Panel*, Fu, K., "What I Wish I Knew My First Year of Teaching - Engaging Students in Design", ASME Design Education Committee, International Design Engineering Technical Conferences, Anaheim, CA, August 19, 2019.

[D1.6] *Plenary Talk*, Fillingim, K., Nwaeri, R., Fu, K., Paredis, C. J., Rosen, D., "Examining the Effect of DFAM Design Rule Presentation on Part Redesign Quality", Solid Freeform Fabrication Symposium, Austin, Texas, August 13, 2018.

[D1.5] *Invited Workshop*, Fu, K., "Thinking about Graduate School and a Career in Academia," SWE Region D Conference, Georgia Institute of Technology, March 11, 2017.

[D1.4] *Invited Workshop*, Kirkman, R., Fu, K., Lee, B."Teaching Ethics as Design," Workshop on Original Policy Research, Georgia Institute of Technology, March 3, 2017.

[D1.3] *Invited Poster Presentation,* Kirkman, R., Fu, K., Potts, C., "Ethics in Design Practice: Integrating Ethics Education into Engineering Capstone Courses," Poster Presentation, National Academy of Engineering 2017 Center for Engineering Ethics and Society, Workshop on Overcoming Challenges to Infusing Ethics into Engineering, January 10-12, 2017, National Academy of Engineering, Washington, D.C.

[D1.2] *Invited Expert Discussion Panelist*, Fu, K., Computational Analogy for the 2016 International Conference on Case-Based Reasoning (ICCBR-16), Atlanta, GA, October 31- November 2, 2016

[D1.1] *Invited Poster Presentation,* Fu, K., "Ethics in Design Practice: Integrating Ethics Education into Engineering Capstone Courses," National Academy of Engineering 2016 Frontiers of Engineering Education, Sept. 25-28, 2016, National Academies Beckman Center, Irvine, CA

D2. Conference and Workshop Presentations

[D2.2] *Poster Presentation*, Fu, K., Sylcott, B., **Hao, Y.,** 2016, CABI Callosum Conference, "Design Fixation: What Can the Brain Tell Us?" April 2016, Georgia State University/Georgia Tech Center for Advanced Brain Imaging, Atlanta, GA

[D2.1] Workshop Co-Leader, Fu, K., Kirkman, R., 17th International Conference on Ethics Across the Curriculum, Integrating ethics into design curriculum for feedback on new course development, Fall 2015

D3. Invited Seminar Presentations

[D3.12] *Principles and Heuristics in Engineering Design Professional Practice, Education, and Beyond*, Texas A&M University, virtual, online, July 31, 2020

[D3.11] *Principles and Heuristics in Engineering Design Professional Practice, Education, and Beyond*, Massachusetts Institute of Technology, Cambridge, MA, November 4, 2019

[D3.10] *Principles and Heuristics in Engineering Design Professional Practice, Education, and Beyond*, University of Michigan, Ann Arbor, MI, October 2019

[D3.9] *Principles and Heuristics in Engineering Design Professional Practice, Education, and Beyond*, Clemson University, Clemson, SC, February 2019

[D3.8] *Principles and Heuristics in Engineering Design Professional Practice, Education, and Beyond*, Oak Ridge National Laboratory, Oak Ridge, TN, April 2019.

[D3.7] National Science Foundation Circle of Design Workshop, Purdue University, West Lafayette, IN, Oct 2019

[D3.6] *Principles and Heuristics in Engineering Design Professional Practice, Education, and Beyond*, Pennsylvania State University, State College, PA, Oct 2018

[D3.5] *Understanding the Role of Design Heuristics in Complex Systems Design at Jet Propulsion Laboratory*, Jet Propulsion Lab., Pasadena, CA, May 2018

[D3.4] *Discovering and Exploring Structure in Design Databases and Its Role in Stimulating Design-by-Analogy*, UC Berkeley, Berkeley, CA, March 2017
[D3.3] *Discovering and Exploring Structure in Design Databases and Its Role in Stimulating Design-by-Analogy*, University of Maryland College Park, College Park, MD, Oct 2016
[D3.2] *Supporting Innovation through Patent-based Design-by-Analogy*, Intellectual Ventures Laboratory, Bellevue, WA, May 2016
[D3.1] *Discovering and Exploring Structure in Design Databases and Its Role in Stimulating Design-by-Analogy*, Univ. of Texas at Austin, May 2016

D4. Other Presentations

[D4.13] *Ethics as Design,* Fu, K., Engineering Ethics course, Georgia Institute of Technology, virtual, June 8, 2020
[D4.12] *Human Factors and Industrial Design*, Fu, K., Senior Capstone Design, Georgia Institute of Technology, Jan 22, 2020
[D4.11] *Idea Generation*, Fu, K., Senior Capstone Design, Georgia Institute of Technology, Jan 13, 2020
[D4.10] *Human Factors and Industrial Design*, Fu, K., Senior Capstone Design, Georgia Institute of Technology, Monday, August 26, 2019
[D4.9] *Building a Research Lab*, Fu, K., Future Faculty – Are you thinking of becoming an academic? Course, Georgia Institute of Technology, Monday, October 28, 2019.
[D4.8] *Customer Needs*, Fu, K., Senior Capstone Design, Georgia Institute of Technology, Jan 15, 2019
[D4.7] *Human Factors and Industrial Design*, Fu, K., Senior Capstone Design, Georgia Institute of Technology, Tuesday, Jan 17, 2019
[D4.6] *Human Factors and Industrial Design*, Fu, K., Senior Capstone Design, Georgia Institute of Technology, Tuesday, August 30, 2018
[D4.5] *Human Factors and Industrial Design*, Fu, K., Senior Capstone Design, Georgia Institute of Technology, Tuesday, Jan 17, 2017
[D4.4] *Poster Presentation*, Fu, K., CETL Celebrating Teaching Day, *Design Ethics: A New Course at GaTech*, March 15, 2016
[D4.3] *Invited Speaker*, Fu, K., GWW School of Mechanical Engineering Gold Carpet Day, "Understanding Engineering, Design, and Innovation through Research at Georgia Tech," April 15, 2016
[D4.2] *Invited Speaker*, Fu, K., School of Industrial Design Gold Carpet Day, "Understanding Engineering, Design, and Innovation through Research at Georgia Tech," April 15, 2016
[D4.1] *Guest Lecture on Design Research,* Fu, K., Invited 2015 Guest lecture to David Ku's Class, ME 3141, "Cutting Edge Technologies"

E. GRANTS AND CONTRACTS

Total Funds Awarded to Candidate as PI: $1,312,419
Total Funds Awarded to Candidate as Co-PI: $1,614,708

E1. As Principal Investigator

[E1.12] Title of Project: IUCRC Planning Grant: Georgia Tech: Center for Digital Factory Innovations (CDFI)
Agency/Company: National Science Foundation – IUCRC
Total Dollar Amount: $20,000
Role: Co-PI

Collaborators: PI Chris Saldana, Co-PIs Andrew Dugenske, Yao Xie
Period of Contract: 1/24/2020-1/23/2021
Candidate's Share: 0%

[E1.11] Title of Project: Supplemental NSF Research Experience for Undergraduates (REU): CAREER: Characterizing Cognitive Bias in Design - A Path to Better Design
Agency/Company: National Science Foundation – Engineering Design and Systems Engineering
Total Dollar Amount: $16,000
Role: PI
Collaborators: None
Period of Contract: 1/24/2020-1/23/2021
Candidate's Share: 100% ($16,000)

[E1.10] Title of Project: CAREER: Characterizing Cognitive Bias in Design - A Path to Better Design
Agency/Company: National Science Foundation – Engineering Design and Systems Engineering
Total Dollar Amount: $500,000
Role: PI
Collaborators: None
Period of Contract: 9/1/2019-8/31/2024
Candidate's Share: 100% ($500,000)

[E1.9] Title of Project: Supplemental NSF Research Experience for Undergraduates (REU): Theoretical Foundation for the Use of Approximations and Heuristics in Systems Engineering and Design
Agency/Company: National Science Foundation – Engineering Design and Systems Engineering
Total Dollar Amount: $32,000
Role: PI
Collaborators: None
Period of Contract: 2/1/2016-2/1/2019
Candidate's Share: 100% ($48,000)

[E1.8] Title of Project: Understanding the Role of Design Heuristics in Complex Systems Design at Jet Propulsion Laboratory (JPL)
Agency/Company: Georgia Institute of Technology CSTAR Summer Fellowship
Total Dollar Amount: $24,982
Role: PI
Collaborators: None.
Period of Contract: 05/01/2017-06/30/2020
Candidate's Share: 100% ($24,982)

[E1.7] Title of Project: Exploring for Design Inspiration: A Probabilistic Visual Approach to Design by Analogy
Agency/Company: National Science Foundation – Engineering Systems Design
Total Dollar Amount: $379,019
Role: PI
Collaborators: None.
Period of Contract: 06/01/2017 – 05/31/2020
Candidate's Share: 100% ($379,019)

[E1.6] Title of Project: Theoretical Foundation for the Use of Approximations and Heuristics in Systems Engineering and Design
Agency/Company: National Science Foundation – Engineering Systems Design

Total Dollar Amount: $299,520
Role: PI
Collaborators: Chris Paredis (former Co-PI)
Period of Contract: 07/15/16 – 07/14/2020
Candidate's Share: 100% ($149,760) (full funds transferred to me with Paredis departure)

[E1.5] Title of Project: Broadening Participation of Underrepresented Groups in ASME DED
Agency/Company: ASME Design Engineering Division
Total Dollar Amount: $25,000
Role: PI
Collaborators: None
Period of Contract: 08/05/2015 - 08/05/2018
Candidate's Share: 100% ($25,000)

[E1.4] Title of Project: Mechanics of Materials: Facilitating a Hands-On Learning Experience with 3D Printing
Agency/Company: National Science Foundation – Improving Undergraduate STEM Education: Education and Human Resources (IUSE:EHR)
Total Dollar Amount: $ 299,163
Role: PI
Collaborators: Jerry Qi (Co-PI), Gordon Kingsley
Period of Contract: 7/01/2017 - 06/30/2021
Candidate's Share: ~40% (~$120,000)

[E1.3] Title of Project: Design Fixation and its Mitigation: What Can the Brain Tell Us?
Agency/Company: Georgia State University/Georgia Institute of Technology Center for Advanced Brain Imaging (CABI)
Total Dollar Amount: $ 8,500 (in the form of 20 hours of MRI Scanning Time)
Role: PI
Collaborators: Brian Sylcott (Asst. Professor, East Carolina University) (Co-PI)
Period of Contract: 11/19/2015 - 01/30/2017
Candidate's Share: 100% ($8,500)

[E1.2] Title of Project: Georgia Institute of Technology Foundation Donation
Agency/Company: Insolves
Total Dollar Amount: $15,492.81
Role: PI
Collaborators: None
Period of Contract: 05/01/2015
Candidate's Share: 100% ($15,492.81)

[E1.1] Title of Project: Design for Additive Manufacturing
Agency/Company: NNMI America Makes
Total Dollar Amount: $1,000,000
Role: PI (since 06/01/2016)
Collaborators: David Rosen, Carolyn Seepersad, Stratasys, Senvol, Siemens, GE
Period of Contract: 10/1/15 – 8/31/17
Candidate's Share: $41,666
Notes: Original PI David Rosen transferred award when departing to new position

E2. As Co-Principal Investigator

[E2.3] Title of Project: Advancing Social Engagement within Engineering Education
Agency/Company: National Science Foundation - Division Of Undergraduate Education
Total Dollar Amount: $2,000,000
Role: Co-PI
Collaborators: PI Shanna Daly, Co-PIs: Jin Woo Lee, Steven Skelos, Colleen Seifert (University of Michigan – Submitting Institution)
Period of Contract: 08/01/2020 – 07/31/2025
Candidate's Share: ~4% ($79,964)

[E2.2] Title of Project: Supplemental NSF INTERN to GRFP for Myela Paige
Agency/Company: National Science Foundation – INTERN Program
Total Dollar Amount: $12,000
Role: Co-PI
Collaborators: PI Bonnie Ferri (OGS)
Period of Contract: 1/1/2017-2/1/2019
Candidate's Share: 100% ($12,000)

[E2.1] Title of Project: Enhanced Preparation for Intelligent Cybermanufacturing Systems (EPICS)
Agency/Company: Department of Energy
Total Dollar Amount: $4,006,771
Role: Co-PI
Collaborators: PI Chris Saldana
Period of Contract: 08/15/2018 – 8/14/2023
Candidate's Share: 40% ($1,602,708)

E4. Pending Proposals

[E4.2] Title of Project: SBIR Phase 1: VISION+: A system for advancing biologically inspired design for innovation
Agency/Company: NSF SBIR
Role: Subcontractor
Collaborators: PI Michael Helms, Georgia Tech
Period of Contract: 10/01/21-09/31/22
Candidate's Share: ~10% ($24,482)

[E4.1] Title of Project: Collaborative Research: Manufacturing USA: A Virtual and Active Learning Approach to Digital Manufacturing Education for the Future of Manufacturing Workforce
Agency/Company: NSF IUSE:EHR
Role: PI
Collaborators: Chris Saldana, Georgia Tech; Thomas Kurfess, Georgia Tech
Period of Contract: 01/01/2022-12/31/2024
Candidate's Share: ~15% ($44,956)

V. EDUCATION

A. COURSES TAUGHT

Year	Term	Course Number	Course Title	Credit Hours	No. of Students
2020	Spring	ME8893A	Future Faculty Practicum	3	7
2020	Spring	ME6101A	Engineering Design	3	40
2020	Spring	ME6101Q	Engineering Design	3	16
2019	Fall	ME1770B	Intro to Engr Graphics	3	46
2019	Spring	ME6101A	Engineering Design	3	40
2019	Spring	ME6101Q	Engineering Design	3	23
2018	Fall	ME1770A	Intro to Engr Graphics	3	45
2018	Fall	ME1770B	Intro to Engr Graphics	3	46
2018	Spring	ME 1770H	Intro to Engr Graphics	3	44
2017	Fall	ME 1770F	Intro to Engr Graphics	3	45
2017	Spring	ME 1770F	Intro to Engr Graphics	3	45
2016	Fall	ME 1770F	Intro to Engr Graphics	3	45
2016	Spring	ID 8900	Special Topics in ID	3	4
2016	Spring	ID 3813DE / PHIL 3109DE	Special Topics/ Design Ethics	3	10 / 26
2015	Fall	ME 1770F	Intro to Engr Graphics	3	48
2015	Spring	ME 1770D	Intro to Engr Graphics	3	43

B. INDIVIDUAL STUDENT GUIDANCE

B1. Ph.D. Students

B.1.a. Graduated Ph.D. Students

	Name	Start Date	Grad Date	Program	Institution	Thesis Title	Publications	Current Position
1	Ricardo Bonilla-Alicea	Fall 2017	May 2020	ME PhD	Georgia Tech	*Novel Social Impact Assessment Framework*	B1.15, B1.24, B3.1	Senior Engineer, 787 Engineering
2	Kenton Blane Fillingim	Fall 2016	Aug 2021	ME PhD	Georgia Tech	*Understanding the Development and Implementation of Heuristics and Biases in Design*	B1.18, B1.17, B1.20, B1, 21, B1.22, B2.22, B2.20	Postdoctoral Fellow, Oak Ridge National Laboratory
3	Hyeonik Song	Fall 2016	May 2021	ME PhD	Georgia Tech	*Exploration-Based Approach for Computationally Supported Design-by-Analogy*	B1.14, B1.12, B1.19, B1.22, B2.21, B2.15, B3.4	Postdoctoral Fellow, Texas A&M University
4	Myela Paige	Fall 2016	Fall 2021	ME PhD	Georgia Tech	*Educational Interventions in Mechanical Engineering: The Impact of Active*	B1.22, B2.18	TBD

						Learning on Learning of Core Engineering Topics		
5	Bumsoo Lee	Spring 2016	Spring 2022	ME PhD	Georgia Tech	*Advancing and Automating Mindmapping Technologies to Enhance and Enable Human Creativity and Virtual Collaboration*	B1.11, B1.23, B2.20, B2.15	Apple

B.1.b. In Process Ph.D. Students

	Name	**Start Date**	**Program**	**Institution**	**Thesis Title**	**Status**	**Publications**
1	Divya Srivastava	Fall 2020	ME PhD	Georgia Tech	*TBD*		Co-advisor with Karen Feigh (AE)
2	Bettina Arkhurst	Spring 2021	ME PhD	Georgia Tech	*TBD*	Passed quals, NSF GRFP, Sloan Fellow, BBISS Fellow	
3	Anastasia Schauer	Fall 2021	ME PhD	Georgia Tech	*TBD*	NSF GRFP	B3.2
4	Nathan DeVol	Fall 2021	ME PhD	Georgia Tech	*TBD*		Co-advisor with Chris Saldana
5	Lisa DeWitte	Fall 2021	Me PhD	Georgia Tech	*TBD*		

B2. M.S. Students

B2.a. Graduated M.S. Students

	Name	**Start Date**	**Grad Date**	**Program**	**Institution**	**Thesis Option**	**Publications**	**Current Position**
1	Catherine Johnson (Reichling)	Fall 2015	Spring 2017	MS Human Comp. Interaction	Georgia Tech	Non-thesis	B1.21, B1.22	Bain and Company, Senior Product Designer
2	Sidney Brinson	Fall 2013	Spring 2016	M. Industrial Design	Georgia Tech	Non-thesis		Creative Director, Orange Sparkle Ball, Inc.

3	Chandan Hebbale	Fall 2014	Spring 2017	M. Industrial Design	Georgia Tech	Non-thesis	B2.16	Cox Automotive, User Experience Researcher II
4	Richard Nwaeri	Fall 2018	Fall 2019	Thesis Title: *Examining the Effect of Design for Additive Manufacturing Rule Presentation on Part Redesign Quality*	Georgia Tech	Thesis	B1.17, B1.20, B2.22	Ford Motor Company, System Engineer
5	Nisha Detchprohm	Fall 2020	MS ME	Thesis Title: *The Effect of Design Experience and Sketch/Render Quality on the Concept Generation Process in Engineering Design*	Georgia Tech	Thesis	B3.3	Researcher, Center for Education Integrating Science, Mathematics, and Computing (CEISMC), Georgia Tech
6	David Gamero	Fall 2019	BSMS ME	Thesis Title: *SQL And NoSQL Databases for Cyber Physical Production Systems in Internet of Things for Manufacturing (IoTfM)*	Georgia Tech	Thesis	B3.5	Microsoft
7	Anastasia Schauer	Fall 2019	MS ME	Thesis Title: *Impact of time on students' application of design for additive manufacturing heuristics*	Georgia Tech	Thesis	B3.2	Continued on to ME PhD Program, NSF GRFP
8	Patrick Jung	Spring 2019	MS ME	Thesis Title*: Scan Strategy Interpolation for Laser Powder Bed Fusion in Manufacturing Applications*	Georgia Tech	Thesis		Advance Medical Designs, Co-advised by Chris Saldana

9	Nathan DeVol	Fall 2019	MS ME	Thesis Title: *The Effect of Sampling Rate and Signal-to-Noise Ratio on Methods for the Automated Determination of Sustained Maximum Amplitudes in Vibration Signals*	Georgia Tech	Thesis		Continued on to ME PhD Program Co-advised by Chris Saldana
10	Zoe Klesmith	Fall 2019	MS ME	Thesis Title: *A Deep Learning Approach to Additive Manufacturing Process Monitoring and Control*	Georgia Tech	Thesis		Continued on to ME PhD Program NSF GRFP Co-advised by Chris Saldana
11	Lisa DeWitte	Fall 2019	MS ME		Georgia Tech	Thesis		Continued on to ME PhD Program Co-advised by Chris Saldana

B2.b. In Process M.S. Students

	Name	**Start Date**	**Program**	**Institution**	**Thesis Option**	**Status**
1	Jenny Wang	Fall 2020	MS ME	Georgia Tech	Thesis	
2	Michael Carrillo	Fall 2020	MS ME	Georgia Tech	Thesis	Co-advised by Chris Saldana
3	Ritesh Bhatt	Fall 2020	MS ME	Georgia Tech	Thesis	Co-advised by Chris Saldana
4	Jessie Liu	Fall 2021	MS ME	Georgia Tech	Thesis	Co-advised by Chris Saldana
5	Lila Bernhardt	Fall 2021	MS ME	Georgia Tech	Thesis	Co-advised by Chris Saldana
6	Enea Dushaj	Fall 2021	MS ME	Georgia Tech	Thesis	Co-advised by Chris Saldana
7	Zaky Hussein	Fall 2021	MS ME	Georgia Tech	Thesis	Co-advised by Chris Saldana
8	Rachel Hwang	Fall 2021	MS ME	Georgia Tech	Thesis	Co-advised by Chris Saldana
9	Brain Johnstone	Fall 2021	MS ME	Georgia Tech	Thesis	Co-advised by Chris Saldana
10	Greg Kurfess	Fall 2021	MS ME	Georgia Tech	Thesis	Co-advised by Chris Saldana

B3. Undergraduate Students

	Name	**Period**	**Program**	**Institution**	**Publications/Notes**
1	Hunter Schaufel	Fall 2021, Spring 2022	BS ME	Georgia Tech	
2	Elisa Koolman	Fall 2021, Spring 2022	BS ME	Georgia Tech	

3	Michael Chen	Summer 2021	BS ME	Georgia Tech	
4	Sarah Dominguez	Spring 2021	BS ME	Georgia Tech	
5	Anna Lummus	Spring 2021	BS ME	Georgia Tech	
6	Anna Pavleszek	Spring 2021	BS ME	Georgia Tech	
7	Brian Feldman	Summer 2020-Spring 2021		Georgia Tech	B1.23
8	Haley Stokes	Spring 2020-Spring 2021	BS AE	Georgia Tech	
9	Nisha Detchprohm	Fall 2019-Spring 2020	BS ME, BSMS	Georgia Tech	Will continue MS in my lab in Fall 2020
10	Jacob Evans	Summer-Fall 2019	BS ME	Georgia Tech	B1.19
11	Tammy VuPham	Spring 2019	BS ID	Georgia Tech	
12	Alexis Davis	Fall 2018 – Spring 2021	BS AE	Georgia Tech	
13	Cameron Whigham	Summer 2018	Summer Undergraduate Georgia Tech Research Experience (SURE)	Georgia Tech	
14	Gardy Anger	Summer 2018	BS ME	Georgia Tech	
15	Erik Shuster	Summer 2018, 2019	BS ME	Georgia Tech	
16	Rebecca Zheng	Summer 2018	BS ME	Georgia Tech	
17	Hannah Shapiro	Spring-Summer 2018, Spring, Fall 2019, Spring, Fall 2020	BS ME	Georgia Tech	B1.18, B1.21 2020 Award ME Outstanding Undergraduate Researcher
18	Mykala Sinclair	Spring, Fall 2017	BS ME	Georgia Tech	
19	Felipe Borja	Summer 2017	(SURE)	Georgia Tech	B1.17, B2.22
20	Richard Nwaeri	Summer, Fall 2017, Spring 2018	BS ME, BSMS ME	Georgia Tech	B1.17, B1.20, B2.22
21	Max Massella	Fall 2016, Spring, Fall 2017	BS ISYE	Georgia Tech	
22	Kaustav Das	Fall 2016, Spring 2017	BS ME	Georgia Tech	B1.15
23	Youssef Assad	Fall 2016	BS ME	Georgia Tech	I2P Instructor
24	Yu Wu	Spring 2016	BS MSE	Georgia Tech	
25	Spencer Obsitnik	Summer 2015	BS ME	Georgia Tech	

26	Joseph May	Summer 2015	BS ME	Georgia Tech	
27	Kevin Cho	Fall 2015	BS ME	Georgia Tech	

B3. Service on thesis or dissertation committees

B3.a. Internal

Degree	Name	Date	Advisor	Dept	Institution
PhD	Kieran Nichols	2021-	Peter Adamczyk	Mechanical Engineering	University of Wisconsin-Madison
MS	Fabian Krug	2021-	Chris Saldana	Mechanical Engineering	Georgia Tech
PhD	Austen Thien	2021-	Chris Saldana	Mechanical Engineering	Georgia Tech
MS	Daneille Saracino	2020-	Julie Linsey	Mechanical Engineering	Georgia Tech
MS	Caroline Massey	2020-	Chris Saldana	Mechanical Engineering	Georgia Tech
MS	Alexandra Schueller	2020-	Chris Saldana	Mechanical Engineering	Georgia Tech
MS	Hanna Ching	2020-	Tony Kim	Mechanical Engineering	Georgia Tech
PhD	Brian Watson	2020-	Bert Bras	Mechanical Engineering	Georgia Tech
PhD	Alexander Murphy	2020-	Julie Linsey	Mechanical Engineering	Georgia Tech
MS	Lance Lu	2020	Chris Saldana	Mechanical Engineering	Georgia Tech
PhD	Marguerite Matherne	2020-	David Hu	Mechanical Engineering	Georgia Tech
PhD	Pierrick Rauby	2020-	Tom Kurfess	Mechanical Engineering	Georgia Tech
MS	Ivan Ren	2020	Tom Kurfess, Chris Saldana	Mechanical Engineering	Georgia Tech
MS	Edward Nguyen	2020	Chris Saldana	Mechanical Engineering	Georgia Tech
MID	Caitlin Ryan	2019-2020	Steven Sprigle	Industrial Design	Georgia Tech
PhD	Stephen Malone	2020-2020	Bert Bras	Mechanical Engineering	Georgia Tech
PhD	Zackery Morris	2019-2020	Bert Bras	Mechanical Engineering	Georgia Tech
MS	Alexander Murphy	2019-2020	Julie Linsey	Mechanical Engineering	Georgia Tech
MS	Jaime Berez	2019-2020	Chris Saldana	Mechanical Engineering	Georgia Tech
PhD	Max Praniewicz	2019-2020	Chris Saldana	Mechanical Engineering	Georgia Tech

MS	Elliott Jost	2019	Chris Saldana	Mechanical Engineering	Georgia Tech
MS	Sam Kersten	2019-2020	Tom Kurfess	Mechanical Engineering	Georgia Tech
PhD	Thomas Feldhausen	2019-2020	Tom Kurfess	Mechanical Engineering	Georgia Tech
PhD	Kyle Saleeby	2019-	Tom Kurfess	Mechanical Engineering	Georgia Tech
MS	Kyle Saleeby	2019	Tom Kurfess	Mechanical Engineering	Georgia Tech
MS	Eymard Prevost	2019	Tom Kurfess	Mechanical Engineering	Georgia Tech
PhD	Ethan Hilton	2019-2020	Julie Linsey	Mechanical Engineering	Georgia Tech
PhD	Megan Tomko	2018-2019	Julie Linsey	Mechanical Engineering	Georgia Tech
PhD	Dongmin Han	2018-2019	Tom Kurfess	Mechanical Engineering	Georgia Tech
MS	William Martin	2017	Cassandra Telenko	Mechanical Engineering	Georgia Tech
MS	John-Travis Hansen	2016-2017	David Rosen	Mechanical Engineering	Georgia Tech
PhD	William Binder	2014-2017	Chris Paredis	Mechanical Engineering	Georgia Tech
MID	Deepak Selvaraj	2016	Kevin Shankwiler	Industrial Design	Georgia Tech
MS	Mitchell Kelley	2016	David Rosen	Mechanical Engineering	Georgia Tech
PhD	Yitao Liu	2016	Roger Jiao	Mechanical Engineering	Georgia Tech
MS	Eric Kim	2015-2016	Julie Linsey	Mechanical Engineering	Georgia Tech
MS	Ricardo Morocz	2015-2016	Julie Linsey	Mechanical Engineering	Georgia Tech
MID	Mark Husack	2014-2015	Stephen Sprigle	Industrial Design	Georgia Tech

C. EDUCATIONAL INNOVATIONS AND OTHER CONTRIBUTIONS

C1. Course Development

[C1.1] Developed interdisciplinary course on Design Ethics with Dr. Robert Kirkman (Philosophy) taught Spring 2016

C2. Course Improvement

[C2.1] Re-designed Required Freshman Course – ME1770 – Introduction to Engineering Graphics and Visualization at Georgia Institute of Technology

- Developed 12 lectures, used by 3 other instructors as well (Linsey, Pucha, Dorozkhin) for ME1770
- Developed 2 ME1770 projects in collaboration with Dr. Julie Linsey
- Developed new hands-on learning tools and interactive module for teaching geometric dimensioning and tolerancing – now used by 3 instructors

[C2.2] Developed and assembled 4 hands-on learning kits for 4 instructors of ME1770 – Fall 2017 at Georgia Institute of Technology
- Clear plastic models demonstration Geometric Dimensioning and Tolerancing rules
- In-class group exercise involving checking aluminum blocks for Geometric Dimensioning and Tolerancing specifications, 10 blocks, 10 calipers, worksheets and slides
- 3D printing example kits to illustrate joint types and tolerances for the new Formiga Selective Laser Sintering machine
- Set of manufacturing process examples, including products that were made with different processes and corresponding slides and worksheets

[C2.3] At Georgia Institute of Technology, Collaborated with ECE team to cross-list 2 Future Faculty courses in ME to help graduate students consider and prepare for academic jobs; taught 7-person special topics course in Spring 2020 to guide ME graduate students through the academic job package preparation process

C3. Professional Development/Continuing Education

Professional Development Activity	Organization/Location	Date
Question, Persuade, Refer (QPR) Suicide Prevention Gatekeeper Training	Georgia Institute of Technology	Spring 2020
Implicit Bias Workshop, College of Engineering	Georgia Institute of Technology	Spring 2020
Increasing Reviewer Risk Tolerance Through Awareness (IRRTTA) Training	NSF, CMMI Division, virtual training	Spring 2020
NSF Engineering Design and Systems Engineering Circle of Design Workshop	NSF, Purdue University	Fall 2019
Oak Ridge National Lab EESD (Energy and Environmental Sciences Directorate) AI in Image and Sensor Analytics Workshop	Oak Ridge National Lab	Fall 2019
LGBTQIA Resource Center Level Up Part 2	Georgia Institute of Technology	Spring 2018
LGBTQIA Resource Center Level Up Part 1	Georgia Institute of Technology	Fall 2017
LGBTQIA Resource Center Trans 101 Training	Georgia Institute of Technology	Spring 2017
GWW School of Mechanical Engineering Teaching Fellow, Fall 2016	Georgia Institute of Technology	Fall 2016
Adaptive Leadership Workshop: Applied and selected, led by Robert Thomas	Georgia Institute of Technology	Spring 2016
Nominated (Invite Only) Symposium, National Academy of Engineering 2016 Frontiers of Engineering Education	National Academies Beckman Center, Irvine, CA	Fall 2016
GT Center for Teaching and Learning (CTL) Class of 1969 Teaching Fellows	Georgia Institute of Technology	Fall 2015 – Spring 2016
GT Center for Teaching and Learning (CTL) Teaching Enrichment Workshop: *Developing*	Georgia Institute of Technology	Fall 2014

Good Global Citizens: Practical Opportunities in Class and Beyond		
GT Center for Teaching and Learning (CTL) Teaching Enrichment Workshop: *Disrespect and Disruption in the Classroom*	Georgia Institute of Technology	Spring 2015
GT Center for Teaching and Learning (CTL) Teaching Enrichment Workshop: *The Reflective Student: Fostering Learning Through Mindfulness*,	Georgia Institute of Technology	Spring 2015
LGBTQIA Resource Center Safe Space Training	Georgia Institute of Technology	Fall 2015
NSF Career Proposal Writing Workshop at Northeastern University	NSF, Northeastern University	Spring 2015
NSF Career Proposal Writing Workshop at ASME International Design Engineering Technical Conferences	NSF, ASME	Fall 2015
NSF Day at Spelman College	NSF, Spelman College	Fall 2015
Workshop and NSF Engineering Systems Design (ESD) and Systems Science (SYS) Grantees meeting: Engineering Design and Systems Engineering	NSF, Clemson University	Fall 2015
DARPA Wait What? A Future Technology Forum	DARPA	Fall 2015

C4. Other Teaching Activities

- Advised team of students from Georgia Institute of Technology and Morehouse College to design and fabricate 5 real-fire relay torches for 150 mile relay race to commemorate 150th Anniversary of Morehouse College, $15,000 budget, Spring 2017
- Advised Grand Challenges Team Hydro, Fall 2015 - Spring 2016, Georgia Institute of Technology

VI. SERVICE

A. PROFESSIONAL CONTRIBUTIONS

A1. Editorial Board Memberships

- ASME Journal of Mechanical Design, Associate Editor, Fall 2021 - present
- Artificial Intelligence for Engineering Design, Analysis and Manufacturing, Editorial Board, Fall 2021-present
- Design Studies Journal, Editorial Board, Spring 2019-present
- Artificial Intelligence for Engineering Design, Analysis and Manufacturing, Guest Editor, Special Issue on Design Creativity, Spring 2017-Summer 2018

A2. Society Offices, Activities, and Membership

Committee Offices/Membership	Role	Dates of Service
American Society of Mechanical Engineers, Design Engineering Division, Committee for Broadening	Committee Member	Fall 2017-present

Participation of Underrepresented Groups		
Design Theory and Methodology Technical Committee, Design Engineering Division, ASME	Chair	October 2018 – October 2019
Design Theory and Methodology Technical Committee, Design Engineering Division, ASME	Vice Chair and Treasurer	October 2017 – September 2018
Design Theory and Methodology Technical Committee, Design Engineering Division, ASME	Secretary	August 2016 – September 2017
Steering Committee for the North American Chapter of the Design Society	Committee Member/ Founding Member	Spring 2015 – October 2017
American Society of Mechanical Engineers, Design Engineering Division, Committee for Broadening Participation of Underrepresented Groups	Committee Co-Chair	Fall 2010 - Fall 2017
American Society of Mechanical Engineers, Design Engineering Division, Committee for Broadening Participation of Underrepresented Groups	Workshop Chair	2011, 2013, 2014 (vice chair)

Society Membership	Dates of Membership
Design Society	2009-present
American Society of Mechanical Engineers	2008-present
Industrial Designers Society of America	2006-present

A3. Organization and Chairmanship of Technical Sessions, Workshops and Conferences

Committee Name	Role	Dates of Service
2020 International Design Engineering Technical Conferences, Design Theory and Methodology	Symposium Chair, Review Coordinator	Fall 2020
2019 International Design Engineering Technical Conferences, Design Theory and Methodology	Symposium Chair, Review Coordinator	Fall 2019
Design Research Symposium at Georgia Tech (with UGA and Clemson)	Symposium Chair and Organizer	Fall 2019
2018 International Design Engineering Technical Conferences, Design Theory and Methodology	Symposium Chair, Review Coordinator	Fall 2018
2017 International Design Engineering Technical Conferences, Design Theory and Methodology	Session Chair	Fall 2017
The Eighth International Conference on Computational Creativity (ICCC-17), Atlanta, Georgia, USA	Program Committee Member	Summer 2017
Computational Analogy for the 2017 International Conference on Case-Based Reasoning (ICCBR-17), Trondheim, Norway	Program Committee Member	Summer 2017
2016 International Conference on Design Creativity (ICDC) Program Committee	Committee Member	Spring - Fall 2016
Advisory Board of the Seventh International Conference on Design Computing and Cognition (DCC'16)	Committee Member	2016
DESIGN 2016 conference Scientific Advisory Board, 14th International Design Conference	Committee Member	2016

International Programme Committee Member for the 6th International Conference on Research into Design (ICoRD'17)	Committee Member	2016
Organizing Committee, Computational Analogy for the 2016 International Conference on Case-Based Reasoning (ICCBR-16), Atlanta, GA,	Committee Member	Fall 2016
Scientific Committee for Design Society's International Conference on Engineering Design	Committee Member	Fall 2014-Spring 2015

A4. Technical Journal or Conference Referee Activities

Peer-Reviewed Archival Journals

[1] Journal of Engineering Design
[2] Design Studies
[3] Design Science
[4] Research in Engineering Design
[5] Artificial Intelligence for Engineering Design, Analysis and Manufacturing
[6] Journal of Mechanical Design
[7] International Journal of Design Creativity & Innovation
[8] IEEE Transactions of Engineering Management
[9] Engineering Systems with Applications

Peer-Reviewed Conferences

[1] International Conference on Design Creativity (ICDC) (2016)
[2] Design Computing and Cognition Conference (DCC) (2016)
[3] International Conference on Research into Design (2017)
[4] ASME International Design Engineering Technical Conferences (IDETC) (2009-2020)
[5] International Conference on Engineering Design (ICED) (2009-2019)
[6] International Conference on Case Based Reasoning (ICCBR) (2016-2017)
[7] CogSci2019: Creativity + Cognition + Computation (2019)

A5. Proposal Panels and Reviews

Committee Name	Role	Dates of Service
NSF Engineering Design and Systems Engineering Proposal Review Panel	Panel Member	Fall 2019
NSF Engineering Systems and Design Proposal Review Panel	Panel Member	Fall 2014

B. PUBLIC AND COMMUNITY SERVICE

Committee Name	Role	Dates of Service
Advisory Board, *FORGE*, Non-profit for increasing gun safety	Member and Data Expert	Fall 2017 - present
Workshop on Girl Scout Mechanical Engineering Badge: Helped to organize and deliver workshop on Girl Scout Mechanical Engineering Badge, hosted in Charlotte, NC with ASME International Design Engineering Tech. Conferences (IDETC) and Lockheed Martin	Co-organizer	Fall 2016
Next Generation Mobility Challenge design sprint at Emory University, Presented by Toyota and Net Impact	Expert Advisor and Judge	Spring 2016

Dodgen Middle School Science Olympiad Invitational: Volunteered as scorer and award distributor at Dodgen Middle School Science Olympiad Invitational	Scorer and Award Distributor	Spring 2015
Workshop on Girl Scout Mechanical Engineering Badge: Helped to organize and deliver workshop on Girl Scout Mechanical Engineering Badge, hosted at MIT in conjunction with ASME IDETC and Lockheed Martin	Co-organizer	Fall 2015

C. INSTITUTE CONTRIBUTIONS

C1. School Committee Service

School of Mechanical Engineering, University of Wisconsin-Madison

Committee Name	Role	Dates of Service
Inclusion and Diversity Committee (IDC)	Committee Member	Fall 2021 – present
Women in Mechanical Engineering Committee	Committee Member	Fall 2021 – present
Faculty Hiring Committee	Committee Member	Fall 2021 – present
Graduate Women in Mechanical Engineering	Co-Faculty Advisor	Fall 2021 – present

School of Mechanical Engineering, Georgia Institute of Technology

Committee Name	Role	Dates of Service
Ad Hoc Committee for Reopening of Makerspaces	Committee Member	Summer 2020
Ad Hoc PhD Qualifying Exam Committee	Committee Member	Spring 2019 – Summer 2020
Georgia Tech FOCUS Program Panel, Mechanical Engineering	Panelist	Spring 2020, 2021
Woodruff School Graduate Women	Faculty Advisor	Fall 2019-present
GaTech ME Communications Director Hiring Committee	Committee Member	Fall 2018
GaTech LGBTQIA Resource Center Liaison to Mechanical Engineering	Liaison	Fall 2018-present
GaTech ME Graduate Student Development Committee	Committee Member	Fall 2016 - present
ME Graduate Committee	Committee Member	Fall 2014 – Fall 2015
ME1770 Academic Professional Hire Search Committee	Committee Member	Fall 2014 – Spring 2015
ME Transforming Engineering Culture to Advance Inclusion and Diversity (TECAID) Committee	Committee Member	Fall 2014
CLASS Assessment Committee: Evaluator: ME1770 Section F	Committee Member/ Evaluator	Fall 2015
ME Design Qualifying Exam Committee	Chair	Spring, Fall 2019, Spring 2020
ME Design Qualifying Exam Committee	Committee Member	Spring 2015-Spring 2019

School of Industrial Design (from 30% joint appointment Fall 2014-Spring 2017), Georgia Institute of Technology

Committee Name	Role	Dates of Service
ID Graduate Committee	Committee Member	AY 2014/15, 2015/16, 2016/17
GaTech Masters in Industrial Design Graduate Admissions Committee	Committee Member	AY 2014/15, 2015/16
GaTech Masters in Industrial Design Curriculum Committee – Design Methods	Committee Member	AY 2015/16
Industrial Designers Society of America Student Merit Award Committee	Judge	Spring 2015, 2016

C2. Program Development: Academic (Georgia Institute of Technology)

Committee Name	Role	Dates of Service
GaTech ID PhD Program Committee: Spearheaded, coordinated and significantly contributed to Proposal for new ID PhD Program	Committee Member	AY 2015/16, 2016/17
Developed/finalized the GaTech ME design concentration for ME majors, in collaboration with the ME CAE/Design RAG	Collaborator/ Champion	Spring 2016

C3. Other Institute Service Contributions (Georgia Institute of Technology)

Committee Name	Role	Dates of Service
NextProf Nexus at Georgia Tech	Panel and Co-host	Fall 2019
Lavender Awards Committee, Georgia Tech LGBTQIA Resource Center	Committee Member	Spring 2017, 2020
Search Committee for Georgia Tech LGBTQIA Resource Center Director	Search Committee Member	Summer, Fall 2019, Spring 2020
College of Engineering Strategy Team Leader: Inclusive, collegial community among students, faculty, staff, and alumni	Team Leader	Spring-Summer 2019
Georgia Tech Center for Biologically Inspired Design	Co-Director	Fall 2018 - present
SWE/SASE Diversity Panel, Student Success Center Clary Theater, Georgia Institute of Technology	Expert Discussion Panelist	Fall 2016
InVenture Prize Preliminary Round	Judge	Spring 2016, 2017, 2018
Georgia Tech Career, Research, and Innovation Development Conference (CRIDIC)	Poster Session Judge	Spring 2016
Senior Capstone Design Review, Instructor: Kathryn Wingate, Thursday	External reviewer	Spring 2016
GaTech Senior Capstone Design	Judge	Spring 2015
GaTech Undergraduate Research Symposium	Judge	Spring 2015
GaTech Industrial Design Gold Carpet Day	Presenter	Spring 2016
GaTech ME Gold Carpet Day	Presenter	Spring 2016