# College of Engineering, Computing and Applied Sciences

**RESUME** – Cameron J. Turner

## PERSONAL DATA

> Associate Professor
> Department of Mechanical Engineering
> Clemson University
> Clemson, SC 29634
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## EDUCATION

> Ph.D., The University of Texas at Austin, 2005, Mechanical Engineering
> M.S.E., The University of Texas at Austin, 2000, Mechanical Engineering
> B.S.M.E., The University of Wyoming, 1997, Mechanical Engineering

## PROFESSIONAL REGISTRATION

> Professional Engineer, New Mexico, 2009, No. 19116
> DOE Q-security clearance, 1997-2013
> DOE Human Reliability Program Certification, 2006-9

## PROFESSIONAL EXPERIENCE

> Clemson University, 2015- , Associate Professor of Mechanical Engineering
> Colorado School of Mines, 2015, Associate Professor of Mechanical Engineering, 2009-14, Assistant Professor of Mechanical Engineering
> Los Alamos National Laboratory, 2010-15, LANL Guest Scientist, 2009-10, LANL Laboratory Affiliate, 2008-09, LANL Advanced R&D Engineer III, 2006-08, Full-Term Technical Staff Member, 1997-2006, Research Assistant Technical Staff Member, 1995-6, Undergraduate Student Technician
> The University of Texas at Austin, 2003, Instructor, 2002-3, Associate Instructor
> MHS Fire Assay and Geochemical Laboratory, 1993, Assistant Researcher, 2992, Chemist/Assayist, 1990-91, Volunteer

## MEMBERSHIPS

> Member, American Society of Mechanical Engineers, 1994-
> Member, Association for Computing Machinery, 2002-
> Member, The Optimization Society, 2013-
> Member, INFORMS, 2013-
> Member, The Design Society, 2015-
> Member, National Society of Professional Engineers, 2009-
> Member, American Society of Engineering Education, 2009-

## PROFESSIONAL ACTIVITIES

ASME IDETC/CIE Conferences Host Selection Committee, Member (2018- ), Conference Executive (2018- ), International

ASME Computers and Information in Engineering Executive Committee, Division Chair (2018- ), Division Vice Chair and Conference Chair (2017-8), CIE Conference Technical Program Chair (2016-7), Secretary (2015-6), Member-At Large (2014-5), International

ASME Innovative Design Simulation Competition Committee, Member (2013- ), International

DOE Collegiate Wind Competition Rules Committee, CSM Representative (2013-5), National

ASME Computer Aided Product and Process Design Past-Chairs Awards Subcommittee (2011-), International

ASME Computer Aided Product and Process Design Committee of the CIE Division, Past-Chair (2010-1), Chair (2009-10), Vice Chair (2008-9), Secretary (2007-8), International

## PUBLICATIONS

### Books and Monographs

1. Turner, C., Linsey, J., Lucero, B. and Agyemang, M., "Identifying Design Analogies thru Models of Function, Flow and Performance," Chapter in Advances in Computers and Information and Engineering Research, Volume II, Michopoulos, J., Rosen, D., Paredis, C. and Vance, J. eds., (Under Review), ASME Press, New York, NY.

### Prior to Clemson

1. Turner, C., and Steuben, J., "Surrogate Modeling with Non-Uniform Rational B-splines," Chapter in Advances in Computers and Information and Engineering Research, Michopoulos, J., Rosen, D., Paredis, C. and Vance, J. eds., (2014), ASME Press, New York, NY.

### Refereed Journal Publications

1. Adams, D. and Turner, C., "An Implicit Slicing Method for Additive Manufacturing Processes," *Invited Submission, Virtual and Physical Prototyping*, **13**:1, pp. 2-7 (2018), doi.org/10.1080/17452759.2017.1392684.
2. Agyemang, M., Linsey, J. and Turner, C., "Transforming Functional Models to Critical Chain Models via Expert Knowledge and Automatic Parsing Rules for Design Analogy Identification", *Artificial Intelligence for Engineering Design, Analysis and Manufacturing*, Special Issue on Function Modeling: Benchmark Models, Problems, and Approaches, **31**:4, pp. 501-11 (2017), doi.org/10.1017/S0890060417000488.
3. Lucero, B., Adams, M. and Turner, C., "Introduction to Quantitative Engineering Design Methods via Controls Engineering", *Artificial*

*Intelligence for Engineering Design, Analysis and Manufacturing*, Special Issue on Function Modeling: Benchmark Models, Problems, and Approaches, **31**:4, pp. 458-75 (2017), doi.org/10.1017/S0890060417000415.

4. Gill, A., Summers, J. and Turner, C., "Comparing function structures and pruned function structures for market price prediction: An approach to benchmarking representation inferencing value", *Artificial Intelligence for Engineering Design, Analysis and Manufacturing*, Special Issue on Function Modeling: Benchmark Models, Problems, and Approaches, **31**:4, pp. 535-49 (2017), doi.org/10.1017/S0890060417000543.

5. Arigoni, A., Newman, A., Turner, C. and Kaptur, C., "Optimizing Global Thermal Coal Shipments", *Omega*, **72**, pp. 118-27 (2017), doi.org/10.1016/j.omega.2016.12.001.

6. Steuben, J., Mustoe, G. and Turner, C., "Massively Parallel Discrete Element Method Simulations on Graphics Processing Units", *ASME Journal of Computers and Information Science in Engineering*, **16**:3, (2016), doi.org/10.1115/1.4033724.

7. Lucero, B., Linsey, J., and Turner, C., "Frameworks for Organising Design Performance Metrics", *Journal of Engineering Design*, **27**:4-6, pp. 175-204 (2016), doi.org/10.1080/09544828.2015.1135235.

### Prior to Clemson

1. Steuben, J., Michopoulos, J., Iliopoulos, A., and Turner, C, "Inverse Characterization of Composite Materials Via Surrogate Modeling", *Journal of Composite Structures*, **132**, pp. 694-708 (2015), doi.org/10.1016/j.compstruct.2015.05.029.

2. Steuben, J., Turner, C., "Graph analysis of non-uniform rational B-spline-based metamodels", *Engineering Optimization*, **47**:9, pp. 1157-76 (2015), doi/org/10.1080/0305215X.2014.954565.

3. Lucero, B., Viswanathan, V., Linsey, J. and Turner, C., "Identifying Critical Functions for use across engineering design domains", *ASME Journal of Mechanical Design*, **136**:12, (2014), doi.org/10.1115/1.4028280.

4. Ngo, P., Turner, C. and Linsey, J., "Identifying Trends in Analogy Usage for Innovation: A Cross-Sectional Product Study", *ASME Journal of Mechanical Design*, Special Issue on Biologically Inspired Design, **136**:11, (2014), doi.org/10.1115/1.4028100.

5. Steuben, J. and Turner, C., "Robust Optimization of Mixed-Integer Problems Using NURBs-Based Metamodels", *ASME Journal of Computers and Information Science in Engineering*, **12**:4, (2012), doi.org/10.1115/1.4007988.

6. Steuben, J., Crawford, R. and Turner, C. , "Robust Engineering Design Optimization with Non-Uniform Rational B-splines-Based Metamodels", *Engineering Optimization*, **45**:7, pp. 767-86 (2012), doi.org/10.1080/0305215X.2012.709509.

7. Howe, S., Caves, K., Kleiner, C., Livesay, G., Norback, J., Rogge, R., and Turner, C., "Panel Report: Nifty Ideas and Surprising Flops", *International Journal of Engineering Education, Special Issue on Capstone Design*, **27**:6, pp. 1174-85 (2011).

8. Turner, C. and Crawford, R., "N-Dimensional Non Uniform Rational B-splines for Metamodeling", *ASME Journal of Computers and Information Science in Engineering*, **9**:3, (2009), doi.org/10.1115/1.3184599.

9. Turner, C. and Lloyd, J., "Automating ARIES", *Actinide Research Quarterly*, Invited Submission, pp. 32-5 (2008), LALP-08-004.

10. Day, P. and Turner, C., "Bio-inspired Robotics for Nuclear Applications", *Actinide Research Quarterly*, Invited Submission, pp. 36 (2008), LALP-08-004.

11. Turner, C., Crawford, R. and Campbell, M., "Multidimensional Sequential Sampling for NURBs-based Metamodel Development", *Engineering with Computers*, **23**:3, pp. 155-74 (2007), doi.org/10.1007/s00366-006-0051-9.

12. Turner, C., Crawford, R., and Campbell, M., "Global Optimization of NURBs-based Metamodels", *Engineering Optimization*, **39**:3, pp. 245-69 (2007), doi.org/10.1080/03052150601077260.

## Conference Proceedings (Reviewed)

1. Fry, S. and Turner, C., "Test Frame Design for the Characterization of Additively Manufactured Compliant Materials", *Proceedings of the 2018 ASME International Design Engineering Technical Conferences/Computers and Information in Engineering Conference,* American Society of Mechanical Engineering, Quebec City, Quebec, Canada (August 2018).

2. Mao, X., Sen, C. and Turner, C., "A Study in Function Modeling Preferences and its Variation with Designer Expertise and Product Types", *Proceedings of the 2018 Design Creativity and Cognition Conference (DCC'18)*, The Design Society, Milan, Italy (July 2018).

3. Turner, C. and Sen, C., "Modelling Differences in Individual Perceptions of Abstracted System Models", *Proceedings of the 5th International Conference on Design Creativity (ICDC18)*, The Design Society, Bath, United Kingdom (January 2018).

4. Turner, C. and Agyemang, M., "Underlying Design Motivations in Design Methods and Outcomes", *Proceedings of the International Conference on Engineering Design*, The Design Society, Vancouver, British Columbia, Canada (August 2017).

5. Patel, A., O'Shields, S., Chickarello, D., Summers, J. and Turner, C., "Change in Peer Efficacy of Senior Design Students During a Design Project: A Case Study", *Proceedings of the International Conference on Engineering Design*, The Design Society, Vancouver, British Columbia, Canada (August 2017).

6. Adams, D. and Turner, C., "Effect of Implicitly Derived Infill Patterns on Mechanical Properties", *Proceedings of the 2017 ASME International Design Engineering Technical Conferences/Computers and Information in*

*Engineering Conference*, American Society of Mechanical Engineering, Cleveland, Ohio, USA (August 2017).

7. Baikerikar, P. and Turner, C., "Comparison of As-Built FEA Simulations and Experimental Results for Additively Manufactured Dogbone Geometeries", *Proceedings of the 2017 ASME International Design Engineering Technical Conferences/Computers and Information in Engineering Conference*, American Society of Mechanical Engineering, Cleveland, Ohio, USA (August 2017).

8. Adams, D. and Turner, C., "Effect of Implicitly Derived Infill Patterns on Mechanical Properties", *Proceedings of the 2017 International Solid Freeform Fabrication Symposium - An Additive Manufacturing Conference*, Laboratory for Freeform Fabrication/Stratasys/National Science Foundation, Austin, Texas, USA (August 2017).

9. Chickarello, D., Agyemang, M., Gill, A. Summers, J., Turner, C. and Wagner, J., "Extraterrestrial Farming with the Leafy Green Machine – LED Performance Testing", *Proceedings of the 47th International Conference on Environmental Systems*, International Conference on Environmental Systems/American Institute of Chemical Engineers/American Society of Mechanical Engineers/American Institute of Aeronautics and Astronautics, Charleston, South Carolina, USA (July 2017).

10. Fry, S. and Turner, C., "Design of a Stewart-Gough Platform for Engineering Materials Characterization", *Proceedings of the 2016 ASME International Congress and Mechanical Exposition Conference*, American Society of Mechanical Engineering, Phoenix, Arizona, USA (November 2016).

11. Turner, C., Morgenthaler, P. and Linsey, J., "Analogy Types from Function Model Representations", *Proceedings of the 4th International Conference on Design Creativity*, The Design Society, Atlanta, Georgia, USA (November 2016).

12. Turner, C. and Linsey, J., "Analogies from Function, Flow and Performance Metrics", *Proceedings of the 24th International Conference on Case Based Reasoning*, National Science Foundation/Knewus Research Corporation, Atlanta, Georgia, USA (November 2016).

13. Gill, A., Turner, C., and Summers, J., "Impact of Level of Detail and Information Content on Accuracy of Function Structure-Based Market Price Prediction Models", *Proceedings of the 2016 ASME International Design Engineering Technical Conferences/Computers and Information in Engineering Conference*, American Society of Mechanical Engineering, Charlotte, North Carolina, USA (August 2016).

**Prior to Clemson**

1. Anderson, D. and Turner, C., "Applying NURBs-based surrogate models for performance forecasting in manufacturing systems", *Proceedings of the 2015 ASME International Congress and Mechanical Exposition*

*Conference*, American Society of Mechanical Engineering, Houston, Texas, USA (November 2015).

2. Tomko, M., Lucero, B., Turner, C. and Linsey, J., "Establishing Functional Concepts Vital for Design by Analogy", *Proceedings of the 2015 ASEE/IEEE Frontiers in Education Conference*, American Society for Engineering Education/Institute of Electrical and Electronics Engineers, El Paso, Texas, USA (October 2015).

3. Adams, M., Turner, C., and Silverman, A., "Dynamically Consistent Whole-Body Modeling and Simulation Can Reasonably Predict In Vivo Knee Loads", *Proceedings of the 2015 ASME International Design Engineering Technical Conferences/Computers and Information in Engineering Conference*, American Society of Mechanical Engineering, Boston, Massachusetts, USA (August 2015).

4. Adams, M., Silverman, A. and Turner, C., "Pseudo Elimination of Geometry Dependence in Surrogate Models of Knee Loads From and Explicit Dynamic Finite Element Analysis", *Proceedings of the 2015 ASME International Design Engineering Technical Conferences/Computers and Information in Engineering Conference*, American Society of Mechanical Engineering, Boston, Massachusetts, USA (August 2015).

5. Lucero, B., Linsey, J. and Turner, C., "Design Repository and Analogical Computation via Unit Language Analysis (DRACULA) Repository Development", *Proceedings of the 2015 ASME International Design Engineering Technical Conferences/Computers and Information in Engineering Conference*, American Society of Mechanical Engineering, Boston, Massachusetts, USA (August 2015).

6. Steuben, J., Van Bossuyt, D. and Turner, C., "Design for Fused Filament Fabrication Additive Manufacturing", *Proceedings of the 2015 ASME International Design Engineering Technical Conferences/Computers and Information in Engineering Conference*, American Society of Mechanical Engineering, Boston, Massachusetts, USA (August 2015).

7. Steuben, J., Michopoulos, J., Iliopoulos, A., and Turner, C., "Inverse Characterization of Composite Materials Using Surrogate Models", *Proceedings of the 2015 ASME International Design Engineering Technical Conferences/Computers and Information in Engineering Conference*, American Society of Mechanical Engineering, Boston, Massachusetts, USA (August 2015).

8. Lucero, B., Linsey, J., and Turner, C., "Design Repository & Analogy Computation via Unit-Language Analysis (DRACULA) Matching Algorithm Development", *Proceedings of the International Conference on Engineering Design*, The Design Society, Milan, Italy (July 2015).

9. Chee, M. and Turner, C., "Localized Decision-Making for Materials Transportation Systems Subject to Stochastic Uncertainty", *Proceedings of the 2014 ASME International Congress and Mechanical Exposition Conference*, American Society of Mechanical Engineering, Montreal, Quebec, Canada (November 2014).

10. Lucero, B., Ngo, P., Linsey, J. and Turner, C., "Frameworks for Organizing Design Performance Metrics", *Proceedings of the 2014 ASME International Design Engineering Technical Conferences/Computers and Information in Engineering Conference*, American Society of Mechanical Engineering, Buffalo, New York, USA (August 2014).

11. Ngo, P., Turner, C. and Linsey, J., "Identifying Trends In Analogy Usage For Innovation: A Cross-Sectional Product Study", *Proceedings of the 2014 ASME International Design Engineering Technical Conferences/Computers and Information in Engineering Conference*, American Society of Mechanical Engineering, Buffalo, New York, USA (August 2014).

12. Steuben, J. and Turner, C., "Adaptive Surrogate-Model Fitting Using Error Monotonicity", *Proceedings of the 2014 ASME International Design Engineering Technical Conferences/Computers and Information in Engineering Conference*, American Society of Mechanical Engineering, Buffalo, New York, USA (August 2014).

13. Turner, C. and Linsey, J., "Computer-Aided Creativity Through Abstraction", Invited Paper, *Proceedings of the 2014 Design Creativity and Cognition Conference*, The Design Society, London, United Kingdom (June 2014).

14. Turner, C. and Reynolds, S., "Multidisciplinary Construction Engineering Design Projects", *Proceedings of the 12th ASEE Annual Conference and Exposition*, American Society for Engineering Education, Indianapolis, Indiana (June 2014).

15. Lucero, B. and Turner, C., "Reframing Engineering Capstone Design Pedagogy for Design with Communities", *Proceedings of the 12th ASEE Annual Conference and Exposition*, American Society for Engineering Education, Indianapolis, Indiana (June 2014).

16. Viswanathan, V., Ngo, P., Turner, C. and Linsey, J., "Innovation in Graduate Projects: Learning to Identify Critical Functions", *Proceedings of the 2013 ASEE/IEEE Frontiers in Education Conference*, American Society for Engineering Education/Institute of Electrical and Electronics Engineers, Oklahoma City, Oklahoma, USA (October 2013).

17. Steuben, J. and Turner, C., "Layout Optimization of Offshore Wind Farms Using NURBs-Based Potential Field Surrogate Models", *Proceedings of the 2013 INFORMS Annual Meeting and Conference, Institute for Operations Research and Management Sciences*, Minneapolis, Minnesota, USA (October 2013).

18. Lucero, B., Viswanathan, V., Linsey, J. and Turner, C., "Analysis of Critical Functionality For MetaAnalogy via Performance Specification", *Proceedings of the 2013 ASME International Design Engineering Technical Conferences/Computers and Information in Engineering Conference*, American Society of Mechanical Engineering, Portland, Oregon, USA (August 2013).

19. Ngo, P., Viswanathan, V., Turner, C., and Linsey, J., "Initial Steps Toward an Analogy Retrieval Tool Based On Performance Specification", *Proceedings of the 2013 ASME International Design Engineering*

*Technical Conferences/Computers and Information in Engineering Conference*, American Society of Mechanical Engineering, Portland, Oregon, USA (August 2013).

20. Steuben, J., Micholpoulos, J., Iliopoulos, A. and Turner, C., "Inverse Characterization of Composite Materials Using Surrogate Models", *Proceedings of the 2013 ASME International Design Engineering Technical Conferences/Computers and Information in Engineering Conference*, American Society of Mechanical Engineering, Portland, Oregon, USA (August 2013).

21. Steuben, J. and Turner, C., "The Impact of Asynchronous GPGPU Behaviors on Stochastic Simulations", *Proceedings of the 2013 ASME International Design Engineering Technical Conferences/Computers and Information in Engineering Conference*, American Society of Mechanical Engineering, Portland, Oregon, USA (August 2013).

22. Steuben, J., Mustoe, G. and Turner C., "Massively Parallel DEM Simulations with a Realistic Friction Model", *Proceedings of the 6th Discrete Element Methods Conference*, EDEM, Golden, Colorado, USA (August 2013).

23. Steuben, J., Mustoe, G. and Turner C., "Massively Parallel DEM Simulations with a Thermal Conduction Model", *Proceedings of the 6th Discrete Element Methods Conference*, EDEM, Golden, Colorado, USA (August 2013).

24. Lucero-Bernhardt, B. and Turner, C., "Passive Evaporative Cooler for Malaria Testing in Developing Countries", *Proceedings of the 2012 ASME International Congress and Mechanical Exposition Conference*, American Society of Mechanical Engineering, Houston, Texas, USA (November 2012).

25. Lucero-Bernhardt, B., Turner, C., Linsey, J., "MetaAnalogy via Performance Specification Through Function Structures", *Proceedings of the 2012 ASME International Congress and Mechanical Exposition Conference*, American Society of Mechanical Engineering, Houston, Texas, USA (November 2012).

26. Steuben, J. and Turner, C., "Robust Optimization of Mixed-Integer Problems Using NURBs-Based Metamodels", *Proceedings of the 2012 ASME International Design Engineering Technical Conferences/Computers and Information in Engineering Conference*, American Society of Mechanical Engineering, Chicago, Illinois, USA (August 2012).

27. Streusand, D. and Turner, C., "Design Methodology for the CSM HAN-DS Gripper", *Proceedings of the 2012 ASME International Design Engineering Technical Conferences/Computers and Information in Engineering Conference*, American Society of Mechanical Engineering, Chicago, Illinois, USA (August 2012).

28. O'Neal, M. and Turner, C., "Reducing the Size of NURBs Control Nets Using Genetic Algorithms and CUDA", *Proceedings of the 2011 ASME International Congress and Mechanical Exposition Conference*, American

Society of Mechanical Engineering, Denver, Colorado, USA (November 2011).

29. Steuben, J., Brayford, P. and Turner, C., "An Operations Research Approach to Work-Optimal Trajectories for Redundant Robotic Manipulators", *Proceedings of the 2011 ASME International Congress and Mechanical Exposition Conference*, American Society of Mechanical Engineering, Denver, Colorado, USA (November 2011).

30. Steuben, J. and Turner, C., "Waypoint-Based Robot Navigation Using NURBs-Based Metamodels", *Proceedings of the 2011 ASME International Congress and Mechanical Exposition Conference*, American Society of Mechanical Engineering, Denver, Colorado, USA (November 2011).

31. Malave, V. and Turner, C., "Metamodel-Assisted Ice Detection for Wind Turbine Blades", *Proceedings of the 2011 ASME International Congress and Mechanical Exposition Conference*, American Society of Mechanical Engineering, Denver, Colorado, USA (November 2011).

32. Pickett, B., Turner, C., and Petrella, A., "Using NURBs-Based Metamodels as Surrogate Spine Models for More Efficient Probabilistic Analysis", *Proceedings of the 2011 ASME International Congress and Mechanical Exposition Conference*, American Society of Mechanical Engineering, Denver, Colorado, USA (November 2011).

33. Pickett, B. and Turner, C., "A Review and Evaluation of Existing Adaptive Sampling Criteria and Methods for the Creation of NURBs-Based Metamodels", *Proceedings of the 2011 ASME International Design Engineering Technical Conferences/Computers and Information in Engineering Conference*, American Society of Mechanical Engineering, Washington, DC, USA (August 2011).

34. Steuben, J., Steele, J., and Turner, C., "NURBs for Robot Manipulator Trajectory Generation", *Proceedings of the 2011 ASME International Design Engineering Technical Conferences/Computers and Information in Engineering Conference*, American Society of Mechanical Engineering, Washington, DC, USA (August 2011).

35. Steuben, J. and Turner, C., "Robust Optimization and Analysis of NURBs-Based Metamodels Using Graph Theory", *Proceedings of the 2011 ASME International Design Engineering Technical Conferences/Computers and Information in Engineering Conference*, American Society of Mechanical Engineering, Washington, DC, USA (August 2011).

36. Streusand, D. and Turner, C., "A Design Methodology Based Process for Robotic Gripper Design", *Proceedings of the 2011 ASME International Design Engineering Technical Conferences/Computers and Information in Engineering Conference*, American Society of Mechanical Engineering, Washington, DC, USA (August 2011).

37. Turner, C., "Metamodeling in Product and Process Design", *Proceedings of the 2011 ASME International Design Engineering Technical Conferences/Computers and Information in Engineering Conference*,

American Society of Mechanical Engineering, Washington, DC, USA (August 2011).

38. Turner, C., "Re-Designing Capstone Design: Two Years of Experience", *Proceedings of the 2011 ASEE Annual Conference and Exposition*, American Society for Engineering Education, Vancouver, British Columbia, Canada (June 2011).

39. Streusand, D., Steuben, J. and Turner, C., "Robotic Interfaces through Virtual Reality Technology", *Proceedings of the 2010 ASME International Congress and Mechanical Exposition Conference*, American Society of Mechanical Engineering, Vancouver, British Columbia, Canada (November 2010).

40. Turner, C., "Teaching Design Methodologies Across Engineering Disciplines", *Proceedings of the 2010 ASME International Congress and Mechanical Exposition Conference*, American Society of Mechanical Engineering, Vancouver, British Columbia, Canada (November 2010).

41. Turner, C., "Diagnosis via NURBs Metamodel", *Proceedings of the 2010 ASME International Congress and Mechanical Exposition Conference*, American Society of Mechanical Engineering, Vancouver, British Columbia, Canada (November 2010).

42. Hammond, C. and Turner, C., "Data Modeling Using NURBs Curves and Modified Genetic Algorithms", *Proceedings of the 2010 ASME International Congress and Mechanical Exposition Conference*, American Society of Mechanical Engineering, Vancouver, British Columbia, Canada (November 2010).

43. Turner, C., "Robust Robotic Decision-Making with NURBs-Based Metamodeling", *Proceedings of the 2010 Next Generation of Technology Workshop*, The University of Texas at Austin, Austin, Texas, USA (August 2010).

44. Steuben, J. and Turner, C., "Robust Optimization Exploration Using NURBs-Based Metamodeling Techniques", *Proceedings of the 2010 ASME International Design Engineering Technical Conferences/Computers and Information in Engineering Conference*, American Society of Mechanical Engineering, Montreal, Quebec, Canada (August 2010).

45. Steuben, J., Anderson, K., Ostrum, C. and Turner, C., "Design of an Instrumented Lathe Tool Post for Vibration Monitoring Studies", *Proceedings of the 2010 ASME International Design Engineering Technical Conferences/Computers and Information in Engineering Conference*, American Society of Mechanical Engineering, Montreal, Quebec, Canada (August 2010).

46. Turner, C., Sulzbach, C., Schowalter, J., "Reinventing Capstone Design 'On-the-Fly'", *Proceedings of the 2010 Capstone Design Conference*, American Society for Engineering Education/Institute of Electrical and Electronics Engineers/American Society for Testing and Materials/National Council of Examiners for Engineering and Surveying, Boulder, Colorado, USA (June 2010).

47. Turner, C., "Fault Recognition in the Presence of Error with NURBS-Based Metamodels", *Proceedings of the 2009 ASME International Design Engineering Technical Conferences/Computers and Information in Engineering Conference*, American Society of Mechanical Engineering, San Diego, California, USA (August 2009).

48. Turner, C., MacDonald, J. and Lloyd, J., "Software Archeology: A Case Study in Software Quality Assurance and Design", *Proceedings of the 2009 ASME International Design Engineering Technical Conferences/Computers and Information in Engineering Conference*, American Society of Mechanical Engineering, San Diego, California, USA (August 2009).

49. Turner, C., Harden, T. and Lloyd, J., "Robotics In Nuclear Materials Processing at LANL: Capabilities and Needs", *Proceedings of the 2009 ASME International Design Engineering Technical Conferences/Computers and Information in Engineering Conference*, American Society of Mechanical Engineering, San Diego, California, USA (August 2009).

50. Ajetunmobi, A., Turner, C., and Crawford, R., "Robust Optimization with NURBs HyPerModels", *Proceedings of the 2008 ASME International Design Engineering Technical Conferences/Computers and Information in Engineering Conference*, American Society of Mechanical Engineering, Brooklyn, New York, USA (August 2008).

51. MacDonald, J., Turner, C., Nekimken, H., Evans, M., and Moya, J., "An Introduction to Vitals", *Proceedings of the 2008 ASME International Design Engineering Technical Conferences/Computers and Information in Engineering Conference*, American Society of Mechanical Engineering, Brooklyn, New York, USA (August 2008).

52. Turner, C., Crawford, R. and Campbell, M., "Mixed Integer Optimization with NURBs HyPerModels", *Proceedings of the 2007 ASME International Design Engineering Technical Conferences/Computers and Information in Engineering Conference*, American Society of Mechanical Engineering, Las Vegas, Nevada, USA (September 2007).

53. Turner, C., Ajetunmobi, A. and Crawford, R., "Fault Detection with NURBs-Based Metamodels", *Proceedings of the 2006 ASME International Design Engineering Technical Conferences/Computers and Information in Engineering Conference*, American Society of Mechanical Engineering, Philadelphia, Pennsylvania, USA (September 2006).

54. Turner, C., and Crawford, R. (2006)., "Modeling Design Spaces with Discontinuous Variables using NURBs HyPerModels", *Proceedings of the 2006 ASME International Design Engineering Technical Conferences/Computers and Information in Engineering Conference*, American Society of Mechanical Engineering, Philadelphia, Pennsylvania, USA (September 2006).

55. Turner, C., and Crawford, R., "Adapting Non-Uniform Rational B-spline Fitting Approaches to Metamodeling", *Proceedings of the 2005 ASME International Design Engineering Technical Conferences/Computers and*

*Information in Engineering Conference*, American Society of Mechanical Engineering, Long Beach, California, USA (September 2005).

56. Turner, C., and Crawford, R., "Selecting an Appropriate Metamodel: The Case for NURBs Metamodels", *Proceedings of the 2005 ASME International Design Engineering Technical Conferences/Computers and Information in Engineering Conference*, American Society of Mechanical Engineering, Long Beach, California, USA (September 2005).

57. Turner, C., Campbell, M., and Crawford, R., "Metamodel Defined Multidimensional Embedded Sequential Sampling Criteria", *Proceedings of the 2004 ASME International Design Engineering Technical Conferences/Computers and Information in Engineering Conference*, American Society of Mechanical Engineering, Salt Lake City, Utah, USA (September 2004).

58. Turner, C., and Crawford, R., "Design of an Electric Motor Failure Testbed", *Proceedings of the 2004 ASME International Design Engineering Technical Conferences/Computers and Information in Engineering Conference*, American Society of Mechanical Engineering, Salt Lake City, Utah, USA (September 2004).

59. Turner, C., Campbell, M., and Crawford, R., "Generic Sequential Sampling for Metamodel Approximations", *Proceedings of the 2003 ASME International Design Engineering Technical Conferences/Computers and Information in Engineering Conference*, American Society of Mechanical Engineering, Chicago, Illinois, USA (September 2003).

60. Turner, C., "Metamodels for Planar 3R Workspace Optimization", *Proceedings of the 2002 ASME International Design Engineering Technical Conferences/Computers and Information in Engineering Conference*, American Society of Mechanical Engineering, Montreal, Quebec, Canada (September 2002).

61. Foster, C., Turner, C., Cox, D., Tesar, D., and Pittman, P., "Computer Model and Simulation of a Glovebox Process", *American Nuclear Society Proceedings of the 9th Topical Meeting on Robotics and Remote Systems*, American Nuclear Society, Seattle, Washington, USA (March 2001).

62. Pehl, J., Turner, C., Cox, D., and Tesar, D., "Design of Small Automation Work Cell Demonstrations", *American Nuclear Society Proceedings of the 9th Topical Meeting on Robotics and Remote Systems,* American Nuclear Society, Seattle, Washington, USA (March 2001).

63. Turner, C., Legault, J., Pehl, J., Cox, D., and Tesar, D., "Developing Specifications for Small Automation Work Cell Systems", *American Nuclear Society Proceedings of the 9th Topical Meeting on Robotics and Remote Systems*, American Nuclear Society, Seattle, Washington, USA (March 2001).

64. Turner, C., Legault, J., Cox, D., and Tesar, D., "Configuration Management for Modular Flexible Small Automation Systems: A Case Study", *Proceedings of the 2000 ASME International Design Engineering Technical Conferences/Computers and Information in Engineering*

*Conference*, American Society of Mechanical Engineering, Baltimore, Maryland, USA (September 2000).

## Conference Proceedings (Unreviewed)

### Prior to Clemson

1. Turner, C., Pickett, B. and Steuben, J., "New Frontiers in Advanced NURBs-Based Metamodels: Design Space Analysis with Hyperdimensional Metamodels", *Proceedings of the 2011 NSF Engineering Research and Innovation Conference*, National Science Foundation, Atlanta, Georgia, USA (January 2011).
2. Turner, C., "Design Space Analysis with Hyperdimensional Metamodels", *Proceedings of the 2009 NSF Civil, Mechanical and Manufacturing Innovation Grantees Conference*, National Science Foundation, Honolulu, Hawaii, USA (June 2009).
3. Turner, C., and Crawford, R., "NURBs HyPerModel Applications", *Proceedings of the 2005 University of Texas Graduate Engineering Research Conference*, National Science Foundation, St. Louis, Missouri, USA (July 2006).
4. Turner, C., "Determining Experimental Adequacy with Adaptive Data Collection and Metamodels", *Proceedings of the 2005 University of Texas Graduate Engineering Research Conference*, The University of Texas at Austin, Austin, Texas, USA (April 2005).
5. Turner, C., and Crawford, R., "Hyperdimensional Sequential Sampling of Engineering Design Spaces", *Proceedings of the 2005 NSF Design, Manufacturing & Industrial Innovation Research Conference*, National Science Foundation, Scottsdale, Arizona, USA (January 2005).
6. McQueen, M., Ashok, P., Turner, C., Cox, D., Hollen, R., and Pittman, P., "Use of Simulation to Examine Operational Scenarios in a Lathe Glovebox for the Processing of Nuclear Materials", *Proceedings of the American Glovebox Society 2001 Conference and Exposition*, American Glovebox Society, San Antonio, Texas, USA (July 2001).
7. Turner, C., Legault, J., Cox, D., and Tesar, D., "Requirements for Small Automation Systems in Glove Box Environments", *1999 Researchers' Conference Proceedings of the Amarillo National Resource Center for Plutonium Researchers Conference*, Amarillo National Resource Center for Plutonium/US Department of Energy, Amarillo, Texas, USA (July 1999).
8. Cox, D., Legault, J., Turner, C., and Tesar, D., "Automated Plutonium Processing Work Cell Technology", *American Nuclear Society Proceedings of the 8th Topical Meeting on Robotics and Remote Systems*, American Nuclear Society, Seattle, Washington, USA (May 1999).
9. Goldman, P., Turner, C., and Anderson, C., "Modeling Micro-Electronics Drill Bit Behavior", *2nd Proceedings of the Biennial Tri-Laboratory Engineering Conference on Modeling and Simulation*, US Department of Energy, Albuquerque, New Mexico, USA (October 1997).

10. Anderson, C., and Turner, C., "Modeling Ductile Dynamic Fracture with ABAQUS/Explicit", *Proceedings of the ABAQUS Users Conference*, ABAQUS, Providence, Rhode Island, USA (June 1996).

## Research Reports

1. Turner C., and Linsey J., "Meta-Analogies by Performance Specification", Clemson University, *Final Report*, National Science Foundation (July 2016).

### Prior to Clemson

1. Turner C., and Linsey J., "Meta Analogy by Performance Specification", Colorado School of Mines, *Report No. 3*, National Science Foundation (July 2015).
2. Turner C., and Linsey J., "Meta Analogy by Performance Specification", Colorado School of Mines, *Report No. 2*, National Science Foundation (July 2014).
3. Turner, C., "CanOut Software Update Report", Colorado School of Mines, *Report No. 21*, Los Alamos National Laboratory/US Department of Energy (June 2014).
4. Turner, C., "Design Space Analysis via Hyperdimensional Metamodels", Colorado School of Mines, *Final Report*, National Science Foundation (August 2013).
5. Turner C., and Linsey J., "Meta Analogy by Performance Specification", Colorado School of Mines, *Report No. 1*, National Science Foundation (July 2013).
6. Turner, C., "LANL CCS Design Report", Colorado School of Mines, *Report No. 20*, Los Alamos National Laboratory/US Department of Energy (May 2013).
7. Turner, C., "Design Space Analysis via Hyperdimensional Metamodels", Colorado School of Mines, *Report No. 3*, National Science Foundation (August 2012).
8. Turner, C., "LANL Can Characterization System Initial Design Report", Colorado School of Mines, *Report No. 19*, Los Alamos National Laboratory/US Department of Energy (May 2012).
9. Turner, C., "LANL Can Characterization System Design Analysis and Verification Report", Colorado School of Mines, *Report No. 18*, Los Alamos National Laboratory/US Department of Energy (February 2012).
10. Turner, C., "Limited Volume Chilled Water System Design", Colorado School of Mines, *Final Report*, Los Alamos National Laboratory/US Department of Energy (December 2011).
11. Turner, C., "Linear Indexer System Design", Colorado School of Mines, *Final Report*, Los Alamos National Laboratory/US Department of Energy (December 2011).
12. Turner, C., "Packaging Systems Upgrade Review Report", Colorado School of Mines, *Report No. 17*, Los Alamos National Laboratory/US Department of Energy (November 2011).

13. Turner, C., "Design Space Analysis via Hyperdimensional Metamodels", Colorado School of Mines, *Report No. 2*, National Science Foundation (August 2011).
14. Turner, C., "Training Adjunct Faculty for the Engineering Senior Design Course Sequence", Colorado School of Mines, *Final Report*, Trefny Foundation (August 2011).
15. Turner, C., "RIPS Packaging Software Test Plan", Colorado School of Mines, *Report No. 16*, Los Alamos National Laboratory/US Department of Energy (August 2011).
16. Turner, C., "RIPS Packaging Software Design Document", Colorado School of Mines, *Report No. 15*, Los Alamos National Laboratory/US Department of Energy (July 2011).
17. Turner, C., "RIPS Packaging Software Requirements and Specifications Document", Colorado School of Mines, *Report No. 12*, Los Alamos National Laboratory/US Department of Energy (June 2011).
18. Turner, C., "RIPS Packaging Software Project Plan Document", Colorado School of Mines, *Report No. 13*, Los Alamos National Laboratory/US Department of Energy (June 2011).
19. Turner, C., "Handling Test Report", Colorado School of Mines, *Report No. 14*, Los Alamos National Laboratory/US Department of Energy (June 2011).
20. Turner, C., "CanOut User Guide", Colorado School of Mines, *Report No. 11*, Los Alamos National Laboratory/US Department of Energy (December 2010).
21. Turner, C., "LANL Robot Gripper Conceptual Design Report", Colorado School of Mines, *Report No. 10*, Los Alamos National Laboratory/US Department of Energy (October 2010).
22. Turner, C., "Design Space Analysis via Hyperdimensional Metamodels", Colorado School of Mines, *Report No. 1*, National Science Foundation (August 2010).
23. Turner, C., "LANL Vacuum Casting Lift Design", Colorado School of Mines, *Final Report*, Los Alamos National Laboratory/US Department of Energy (August 2010).
24. Turner, C., "Engineering Senior Design Program for the ATV Bridge Project", Colorado School of Mines, *Final Report*, US Fish and Wildlife Service (August 2010).
25. Turner, C., "Engineering Senior Design Course Assessment Improvement", Colorado School of Mines, *Final Report*, Trefny Foundation (August 2010).
26. Turner, C., "LANL Robot Gripper Final Design Report", Colorado School of Mines, *Report No. 8*, Los Alamos National Laboratory/US Department of Energy (August 2010).
27. Turner, C., "LANL Robot Gripper Design Requirements Report", Colorado School of Mines, *Report No. 9*, Los Alamos National Laboratory/US Department of Energy (August 2010).
28. Turner, C., "Year 1 Report", Colorado School of Mines, *Report No. 6*, Los Alamos National Laboratory/US Department of Energy (June 2010).

29. Turner, C., "LANL RIPS Maintenance Plan Report", Colorado School of Mines, *Report No. 7*, Los Alamos National Laboratory/US Department of Energy (June 2010).
30. Turner, C., "LANL Robot Gripper Project Description Report", Colorado School of Mines, *Report No. 5*, Los Alamos National Laboratory/US Department of Energy (April 2010).
31. Turner, C., "RIPS Upgrade Report", Colorado School of Mines, *Report No. 4*, Los Alamos National Laboratory/US Department of Energy (December 2009).
32. Turner, C., "RIPS Management Self Assessment Critical Requirements Report", Colorado School of Mines, *Report No. 3*, Los Alamos National Laboratory/US Department of Energy (October 2009).
33. Turner, C., "RIPS Acceptance Test Report", Colorado School of Mines, *Report No. 2*, Los Alamos National Laboratory/US Department of Energy (August 2009).
34. Turner, C., "RIPS Acceptance Test Plan", Colorado School of Mines, *Report No. 1*, Los Alamos National Laboratory/US Department of Energy (July 2009).

## Other Scholarly Publications

1. Agyemang, M. and Turner, C., "Tapping into the Dynamics of Customer Needs and Context", *Proceedings of the 2018 ASME International Design Engineering Technical Conferences/Computers and Information in Engineering Conference*, Quebec City, Quebec, Canada (August 2018).
2. Turner, C. and Fry, S., "Avoiding Singularities in Parallel Robotic Design", *Proceedings of the 2016 INFORMS Annual Meeting and Conference*, Nashville, Tennessee, USA (October 2016).

### Prior to Clemson

1. Turner, C., "Applications of Surrogate-Based Optimization," Invited Presentation for Special Session on Surrogate Optimization, *Proceedings of the 2015 INFORMS Annual Meeting and Conference*, Philadelphia, Pennsylvania, USA (November 2015).
2. Arigoni, A., and Turner, C., "Global Thermal Coal Optimization Under Uncertainty", *Proceedings of the 2015 INFORMS Annual Meeting and Conference*, Philadelphia, Pennsylvania, USA (November 2015).
3. Turner, C., "Modeling Probability Density Functions with Metamodels for More Efficient Monte Carlo Analysis", *Proceedings of the 2014 ASME International Mechanical Engineering Congress and Exposition*, Montreal, Quebec, Canada (November 2014).
4. Arigoni, A., and Turner, C., "A Deterministic Network Model for Global Thermal Coal Optimization", *Proceedings of the 2014 INFORMS Annual Meeting and Conference*, San Francisco, California, USA (November 2014).
5. Arigoni, A., Newman, A. and Turner, C., "Global Thermal Coal Flow Optimization Using a Network Construct", *Proceedings of the 2013*

*INFORMS Annual Meeting and Conference*, Minneapolis, Minnesota, USA (October 2013).

6. Lucero-Bernhardt, B. and Turner, C., "Problems in Thermal Management: Passive Evaporative Cooler for Malaria Testing in Developing Countries," Invited Submission, *Proceedings of the 2012 ASME International Mechanical Engineering Congress and Exposition*, Houston, Texas, USA (November 2012).

7. Turner, C., Pickett, B. and Steuben, J., "New Frontiers in Advanced NURBs-Based Metamodels: Design Space Analysis with Hyperdimensional Metamodels", *Proceedings of the 2011 NSF Engineering Research and Innovation Conference*, Atlanta, Georgia, USA (January 2011).

8. Turner, C. and Steuben, J., "Multi-Objective Optimization with NURBs-Based Metamodels", *Proceedings of the 2010 ACM Winter Simulation Conference*, Baltimore, Maryland, USA (December 2010).

9. Turner, C., "Design Space Analysis with Hyperdimensional Metamodels", *Proceedings of the 2009 NSF Civil, Mechanical and Manufacturing Innovation Grantees Conference*, Honolulu, Hawaii, USA (June 2009).

10. Turner, C., and Crawford, R., "NURBs HyPerModel Applications", *Proceedings of the 2006 NSF Design, Service and Manufacturing Grantees Research Conference*, St. Louis, Missouri, USA (July 2006).

11. Turner, C., and Crawford, R., "Hyperdimensional Sequential Sampling of Engineering Design Spaces", *Proceedings of the 2005 NSF Design, Manufacturing & Industrial Innovation Research Conference*, Scottsdale, Arizona, USA (January 2005).

## PRESENTATIONS

1. Turner, C., "Surrogate-Based Decision-Making", Invited Talk, *2018 ASME IDETC/CIE Conferences Computers and Product and Process Design Committee Panel Session*, Quebec City, Quebec, Canada (August 27, 2018).

2. Turner, C., "Computer-Aided Computational Analogies", Invited Talk, *Florida Institute of Technology Department of Mechanical and Aerospace Engineering Seminar Series*, Melbourne, Florida, USA (October 27, 2017).

3. Stevens, A. and Turner, C., "Collaborative Robot Exploration and Decision Making Using NURBS Based Surrogate Models", *2017 ASME IDETC/CIE Technical Conferences Poster Session*, Cleveland, Ohio, USA (August 5-9, 2017).

4. Fry, S. and Turner, C., "Design towards Additive Manufacturing Characterization with 6-DOF Test Frame", *2017 ASME IDETC/CIE Technical Conferences Poster Session*, Cleveland, Ohio, USA (August 5-9, 2017).

5. Turner, C., "Avoiding Singularities in Parallel Robotic Design", *2016 INFORMS Annual Meeting and Conference Technical Presentation*, Nashville, Tennessee, USA (November 16, 2016).

6. Agyemang, M. and Turner, C., "Impact of Underlying Design Motivations upon Design Analogies", *4th International Conference on Design Creativity (ICDC) Poster Session*, Atlanta, Georgia, USA (November 2-4, 2016).
7. Fry, S. and Turner, C., "6-DOF Test Frame Experimentation of Additive Manufacturing Materials", *2016 ASME IDETC/CIE Technical Conferences Poster Session*, Charlotte, North Carolina, USA (August 21-24, 2016).
8. Turner, C. and Linsey, J., "Abstraction Methods and Applications in Engineering Design", *Workshop at the 2016 ASME IDETC/CIE Technical Conferences*, Charlotte, North Carolina, USA (August 21, 2016).
9. Turner, C., "Solving with Surrogates", *2016 Clemson University Research Symposium*, Clemson, South Carolina, USA (May 4, 2016).

### Prior to Clemson

1. Turner, C., "NURBs-based Response Surface (Surrogate) Models", Keynote Application, *2015 NSF Design Circle and ESD/SYS Grantees Workshop*, Clemson, South Carolina, USA (November 15, 2015).
2. Turner, C., "Applications of Surrogate-Based Optimization", Invited Presentation for Special Session on Surrogate Optimization, *2015 INFORMS Annual Meeting and Conference*, Philadelphia, Pennsylvania, USA (November 2, 2015).
3. Turner, C., "LANL-University R&D in Robotics", *Los Alamos National Laboratory Workshop on Robotics and Automation*, Los Alamos, New Mexico, USA (October 19, 2015).
4. Turner, C., "Complex Engineering Design Problems: The Past, Present and Future of Surrogate Approximation Models", *Clemson University Department of Mechanical Engineering Seminar Series*, Clemson, South Carolina, USA (February 9, 2015).
5. Turner, C., "Surrogate Modeling in Optimization and Design", *Clemson University Department of Mechanical Engineering Seminar Series*, Clemson, South Carolina, USA (September 11, 2014).
6. Turner, C., "Surrogate Modeling in Optimization and Design", *Georgia Institute of Technology Department of Mechanical Engineering Seminar Series*, Atlanta, Georgia, USA (September 9, 2014).
7. Turner, C., "Design Optimization with NURBs-Metamodel Derived Graphs", *Texas A&M University Mechanical Engineering Department Seminar Series*, College Station, Texas, USA (November 12, 2012).
8. Turner, C., "The Art, Intelligence and Science of Engineering Design", CSM Alumni Luncheon in Los Alamos, Los Alamos, New Mexico, USA (November 7, 2012).
9. Turner, C. and Steuben, J., "Advanced NURBs-Based Metamodels: Design Space Analysis with Hyperdimensional Metamodels", *2012 NSF Engineering Research and Innovation Conference Poster Session*, Boston, Massachusetts, USA (July 9-12, 2012).

10. Turner, C., "Design for Wind Turbine Operation in Icing Conditions: Quantification of Fatigue Effects", *CREW Seed Funding Group Seminar*, Golden, Colorado, USA (March 13, 2012).
11. Turner, C., "Materials Selection through the use of Interdisciplinary Design Methods", *Materials Selection Symposium Technical Presentation*, Worcester, Massachusetts, USA (March 24, 2011).
12. Turner, C., "Multi-Objective Optimization with NURBs-Based Metamodels", *2010 Association of Computing Machinery Winter Simulation Conference Poster Presentation*, Baltimore, Maryland, USA (December 5-8, 2010).
13. Turner, C., "Project Elevator Pitches", *2010 Capstone Design Conference Poster Presentation*, Boulder, Colorado, USA (June 7-9, 2010).
14. Turner, C., "Broader Impacts Essay", *2010 Capstone Design Conference Poster Presentation*, Boulder, Colorado, USA (June 7-9, 2010).
15. Turner, C., "Reinventing Capstone Design 'On-the-Fly'", *2010 Capstone Design Conference Poster Presentation*, Boulder, Colorado, USA (June 7-9, 2010).
16. Turner, C., "Engineering with NURBs-Based Design Spaces", *CSM Mechanical Engineering Graduate Seminar Series*, Golden, Colorado, USA (November 12, 2009).
17. Turner, C., "NURBs-Enabled Design Space Optimization", *CSM Optimization Research Group Seminar Series*, Golden, Colorado, USA (November 3, 2009).
18. Turner, C., "Why SQA", *Los Alamos National Laboratory and Lawrence Livermore National Laboratory Seminar*, Los Alamos, New Mexico, USA (August 17, 2009).
19. Turner, C., "Design, Innovation and Computational Engineering Laboratory", *Center for Automation, Robotics and Distributed Intelligence Seminar Series*, Golden, Colorado, USA (March 19. 2009).

## PATENTS

### Prior to Clemson

1. "Anisotropic Multiphysics Sensing Systems for Layered Materials", USA, U.S. Patent Application, #2015/0369767 A1, Steuben, J., Turner, C. and Van Bossuyt, D.

## HONORS AND AWARDS

1. Division Service Recognition for the 2018 CIE Conference Chair, American Society of Mechanical Engineers Computers and Information in Engineering Division (2018).
2. Division Service Recognition for the 2017 CIE Conference Technical Program Chair, American Society of Mechanical Engineers Computers and Information in Engineering Division (2017).
3. Solid Freeform Fabrication Symposium Best Paper Award, Solid Freeform Fabrication Symposium (2017).

4.  ASME CIE Division Best Dissertation Award (Briana Lucero), American Society of Mechanical Engineers (2016).

**<u>Prior to Clemson</u>**

1.  CSM EDP Director's Award for service to the Engineering Design Program, Colorado School of Mines (2015).
2.  ASME CIE Division Best Dissertation Award (John Steuben), American Society of Mechanical Engineers (2015).
3.  CSM Mechanical Engineering Best Dissertation Award (John Steuben), American Society of Mechanical Engineers (2015).
4.  Computers-Aided Product and Process Development Best Paper Award, American Society of Mechanical Engineers (2012).
5.  ASME IMECE Service Award, American Society of Mechanical Engineers (2011).
6.  ASME CAPPD Leadership and Service Award, American Society of Mechanical Engineers (2011).
7.  Engineering Division Director Faculty Award, Colorado School of Mines (2010).
8.  CSM Volleyball Team Favorite Professor, Colorado School of Mines (2009).
9.  CSM Society of Women Engineers Outstanding Faculty Member, Society of Women Engineers (CSM Chapter) (2009).
10. John Brown E&C Endowed Graduate Fellowship in Engineering, The University of Texas at Austin (2004 & 2005).
11. University of Texas College of Engineering Graduate Fellowship, The University of Texas at Austin (2002 & 2003).
12. Virginia and Ernest Cockrell, Jr. Fellowship in Engineering (5 years), The University of Texas at Austin (1997).
13. NSF Graduate Fellowship Honorable Mention, National Science Foundation (1997).
14. NDSEG Fellowship Honorable Mention, US Department of Defense (1997).
15. Hertz Foundation Fellowship Finalist, Hertz Foundation (1997).
16. James F. Lincoln Arc Welding Foundation National Design Competition Merit Award, James F. Lincoln Arc Welding Foundation (1997).
17. Department of Mechanical Engineering Honor Book – Top Graduate (1997).
18. 1st Place, University of Wyoming College of Engineering Technical Paper Competition, University of Wyoming College of Engineering (1996).
19. U.S. West Academic Excellence Award, U.S. West, (1996).
20. Pi Tau Sigma (1995).
21. Phi Kappa Phi (1995).
22. Golden Key Honor Society (1995).
23. Tau Beta Pi (1994).
24. Tau Beta Pi UW Sophomore Engineer of the Year (1993).
25. Valedictorian, J.K. Mullen High School, Denver, Colorado (1992).

26. DOE High School Honors Research Program at Brookhaven National Laboratory, State of Colorado (1991).


## SPONSORED RESEARCH

1. "Adopting Computer-Aided Manufacturing Technologies at Metromont," Metromont Corporation, Principal Investigator, $109,920, ($109,920), (2018- ).
2. "Enabling Industry 4.0 for Multi-tiered Quality and Process Control in Precision Manufacturing of Composites," Co-Investigator, $100,000, ($5000), (2018- ).
3. "Freight Farms/SGSGC 2016: Thermal Energy Controls Design and Optimization", South Carolina Space Grant, Co-Investigator, $10000, ($3333), (2016-17).
4. "NASA STTR Thermal/Energy Controls Design and Optimization", NASA via Freight Farms LLC, Co-Investigator, $80,095, ($26,698), (2016-17).
5. "NRL CRADA: Multiaxial Material Testing System Design, Prototyping and Verification", Naval Research Laboratory, Principle Investigator, $0, ($0), (2016- ).
6. "Collaborative Research: MAPS - Meta-Analogy for Performance Specification", National Science Foundation, Principle Investigator, $426,061, ($218,589), (2012-16). *NOTE: Funding was active while I was at Clemson, but remained at CSM to support students completing their degrees there.)*


### Prior to Clemson

1. "CSM Entry - National Collegiate Wind Competition", US Department of Energy, Principle Investigator, $25,000, ($20,000), (2013-14).
2. "Montrac System", Center for Automation, Robotics and Distributed Intelligence, Principle Investigator, $15,941, ($15,941), (2012-13).
3. "LANL Basic Agreement", LANL/US Department of Energy, Principle Investigator, $0, ($0), (2011-16).
4. "2011 CSM Lunabotics Mining Competition Team Funding", NASA ESMD Space Grant, Principle Investigator, $4,000, ($400), (2011-12).
5. "Antarctic Barcode Scanner and Logistics Improvement", Raytheon Polar Services, Principle Investigator, $2,000, ($600), (2011-12).
6. "Training Adjunct Faculty for the Engineering Senior Design Course Sequence", Trefny Institute, Principle Investigator, $6,520, ($2,608), (2011-12).
7. "Linear Indexer System Design", LANL/US Department of Energy, Principle Investigator, $30,000, ($30,000), (2010-12).
8. "Limited Volume Chilled Water System Design", LANL/US Department of Energy, Principle Investigator, $25,000, ($25,000), (2010-12).
9. "CSM Lunabotics Mining Competition Team", NASA ESMD Space Grant, Principle Investigator, $4,000, ($400), (2010-11).

10. "Engineering Senior Design Program Assessment Improvement", Trefny Institute, Principle Investigator, $4,695, ($4,695), (2010-11).
11. "Vacuum Casting Lift Design", LANL/US Department of Energy, Principle Investigator, $10,209, ($10,209), (2010).
12. "Engineering Senior Design Program for the ATV Project", US Fish & Wildlife Service, Principle Investigator, $2,000, ($200), (2010).
13. "RIPS Technical Support Contract w/Extensions", LANL/US Department of Energy, Principle Investigator, $694,287, ($694,287), (2009-15).
14. "Design Space Analysis with Hyperdimensional Metamodels", National Science Foundation, Principle Investigator, $306,000, ($306,000), (2009-13).

## OTHER SPONSORED ACTIVITY

1. "Development of an Unmanned Exploration Vehicle", Dynetics, Principle Investigator, $5000, ($5000), (2017- ).

### Prior to Clemson

1. "LEEG: LANL Montrac System", LANL/US Department of Energy, Principle Investigator, $616,857, ($616,857), (2011-15).
2. "RIPS Backup Robot", LANL/US Department of Energy, Principle Investigator, $15,000, ($15,000), (2009-15).

## GRADUATE STUDENT ADVISING

### Doctoral Graduates

1. Ashley, Arigoni, "Stochastic Models of the Global Thermal Coal Trade Networks", December 2016, (Advisor until I moved to Clemson, Co-Advisor afterwards by CSM policy). *NOTE: CSM Student.*
2. King, Barry, "Using Integer Programming for Strategic Underground and Open Pit-to-Underground Scheduling", May 2016, (Committee Member). *NOTE: CSM Student.*
3. Scioletti, Michael, "A Mixed-Integer Program for the Design and Dispatch of a Hybrid Power Generation System", May 2016, (Committee Member). *NOTE: CSM Student.*

### Prior to Clemson

1. Al Ameri, Saeed, "A Coupled Nuclear Reactor Thermal Energy Storage System for Enhanced Load Following Operation", May 2015, (Committee Member).
2. Alkaabi, Ahmed, "Development of a Three-Dimensional Core Transient Thermal Hydraulics Model of the US Geological Survey TRIGA Reactor", May 2015, (Committee Member).
3. Lucero, Briana, "DAPPS - Design Analogy Performance Parameter System", December 2014, (Advisor).

4. Steuben, John, "Massively Parallel Engineering Simulations on Graphics Processors: Parallelization, Synchronization and Approximation", December 2014, (Advisor).
5. Tarvin, David, "Benders Decomposition: An Integer-Programming Extension with Further Computational Enhancements", December 2014, (Committee Member).
6. Garvey, Ryan, "A Study of Unstable Rock Failures Using Finite Difference and Discrete Element Methods", May 2013, (Committee Member).
7. Frank, Stephen, "Optimal Design of Mixed AC-DC Distribution Systems for Commercial Buildings", May 2013, (Committee Member).

## Masters Graduates

1. Patel, Apurva, "An Investigation of Modeling Behaviors in Function Structure Modeling with Respect to Chaining Methods", December 2017, (Committee Member).
2. Sane, Hrishikesh, "A Holistic Investigation and Implementation of Fluidic Origami Cellular Solid for Morphing and Actuation", June 2017, (Committee Member).
3. Baikerikar, Prathamesh, (MS), "Comparison of As-Built FEA Simulations and Experimental Results for Additively Manufactured Dogbone Specimens", May 2017, (Advisor).
4. Delspina, Brandon, (MS), "Desiderata Milies at a Large Scale Medical Device Manufacturere: A Case Study", May 2017, (Committee Member).
5. Knackstedt, Steven, (MS), "A Case Study on Part Engineering Change Management from a Development and Production Perspective at a Major Automotive OEM", December 2016, (Committee Member).
6. Morgenthaler, Peter, (MS), "Analogy Matching with Function, Flow and Performance", August 2016, (Advisor). *NOTE: CSM Student.*
7. Kumar, Varun, (MS), "Understanding the Role and Importance of Design Problems in Creativity Research", August 2016, (Committee Member).
8. Short, Adam, (MS), "Design of Autonomous Systems for Survivability through Conceptual Object-Based Risk Analysis", May 2016, (Committee Member). *NOTE: CSM Student.*

### Prior to Clemson

1. Anderson, Daniel, (MS), "Intelligent Adaptive Scheduling for Industrial Manufacturing", May 2015, (Advisor).
2. Adams, Matthew, (MS), "Multiscale Modeling and Analysis via Surrogate Modeling Techniques for In Vivo Knee Loading Predictions", December 2014, (Co-Advisor).
3. Chee, Matthew, (MS), "The Application of Mobile Robotics Concepts to Industrial Automation", December 2014, (Advisor).
4. Peace, Jordan, (MS), "The Lean Design for the Developing World Method: A Novel Lean Market-Based Product Design Methodology for

Developing World Markets that Benefits Consumers and Companies",
May 2014, (Committee Member).

5. Streusand, David, (MS), "Design of a Low-Cost Dexterous Robotic
Gripper with Integrated Sensor Capabilities", May 2012, (Advisor).
6. Pickett, Bethany, (MS), "Probabilistic Metamodeling Using NURBs and
Adaptive Sampling", May 2011, (Advisor).
7. Steuben, John, (MS), "Graph-Based Robust Optimization of NURBs
Metamodels", May 2011, (Advisor).
8. Ajetunmobi, Abiola, (MSE), "Robust Optimization Using NURBs Based
Metamodels", May 2007, (Committee Member). *NOTE: UT-Austin Student.*

## Current Graduate Advising

1. Apostle, Andre (Ph.D.), "Tentative Title - Agent-Based Optimization of
Autonomous Transportation Systems," May 2021, (Co-Advisor).
2. Masoudi, Nafiseh (Ph.D.), "Title TBD," May 2020, (Committee Member).
3. Baskar, Siddharth (MS), "Tentative Title – Size Reduction of Additively
Manufactured Parts for Recycling," May 2019, (Advisor).
4. Menezes, Chelsea (MS), "Tentative Title – Discrete Element Models of
Additively Manufactured Parts," May 2019, (Advisor).
5. Peddada, Sumana (MS), "Tentative Title – Additively Manufactured
Shape Memory Polymers for Automotive Applications," May 2019,
(Advisor).
6. Korgaonkar, Unnati (MS), "Tentative Title – Topological Optimization of
Infill Patterns in Additively Manufactured Parts with Neural Networks,"
May 2019, (Advisor).
7. Damas, Sara (MS), "Tentative Title – Multimaterial Additive
Manufacturing by Binder Modification," May 2019, (Advisor).
8. Stevens, Alice, (MS-Nonthesis), December 2018, (Advisor).
9. Ponnapali, Sathwika, (MS), "Recycling of ABS Additively Manufactured
Materials and the Impact upon their Mechanical Properties", December
2018, (Advisor).
10. Fry, Sean, (MS), "6-DOF Test Frame Experimentation of Additive
Manufacturing Materials Using High-Speed Inverse Characterization",
December 2018, (Advisor).
11. Anubhav, Prashant, (MS-Nonthesis), May 2018, (Advisor).
12. Agyemang, Malena, (Ph.D.), "User Personas to Predict Design Solution
Adoption or Rejection," May 2019, (Advisor).
13. Manning, Jessica, (Ph.D), "Title TBD," Graduation TBD, (Committee
Member).
14. Gendreau, Elizabeth, (MS), "Title TBD," Graduation TBD, (Committee
Member).
15. Charron, Jon, (MS), "Title TBD," Graduation TBD, (Advisor).

**TEACHING**

**Courses Taught**

ME2900/3900/4900, Creative Inquiry in Robotic Agriculture, F17, S18, F18.

ME4010, Mechanical Engineering Design, S16, F16, S17, Su17, F17, S18, Su18.

ME4020, Internship in Mechanical Engineering, F18

ME8700, Advanced Design Methodologies, F18

ME8720, Design Automation, S18

**Prior to Clemson**

MEGN493/593, Engineering Design Optimization, S09, S10, S12, S14, S15.

EGGN491, Senior Design I, F09, F10, S11, F11, S12, F12, S13, F13, S14, S15.

EGGN492, Senior Design II, S10, S11, F11, S12, F12, S13, F13, F14, S15.

EGGN497, Capstone Competitions, Su12.

MEGN591, Advanced Engineering Design Methods, F10, F12, F14.

EGGN598, System Design, Modeling and Optimization, S13.

EGGN599, Independent Study in Advanced Engineering Design and Prototyping, S13.

MEGN503, Mechanical Engineering Graduate Seminar in Robotics, Automation and Design, F14, S15, F15.

MEGN485, Manufacturing Optimization with Network Models, F15.

MEGN544, Robot Kinematics, Dynamics and Control, F15.

**New Course Development**

**Prior to Clemson**

MEGN591, Advanced Engineering Design Methods

MEGN493/593, Engineering Design Optimization

EGGN598, System Design, Modeling and Optimization (slated to become MEGN594)

EGGN599, Independent Study in Advanced Engineering Design and Prototyping (slated to become MEGN592)

EGGN497, Capstone Competitions

MEGN503, Mechanical Engineering Graduate Seminar in Robotics, Automation and Design

MEGN485, Manufacturing Optimization with Networks

EGGN491, Senior Design I was completely redesigned

EGGN492, Senior Design II was completely redesigned

## UNIVERSITY AND PUBLIC SERVICE

### Continuing Education

1. Conference Chair, ASME 2018 Computers and Information in Engineering Conference (August 2017-August 2018).
2. Technical Program Chair, ASME 2017 Computers and Information in Engineering Conference (August 2016-August 2017).
3. Track Chair/Co-Chair, ASME IMECE Conference (November 2012-November 2016).

### Prior to Clemson

1. Local Site Coordinator, ASME 2011 IMECE Conference (November 2010-November 2011).
2. Local Coordinator, Colorado ProE Users Group (Fall 2011).

### Committees

| | |
|---|---|
| Department: | Member, Scholarships and Awards Committee (2017- ) |
| | Member, Laboratory Committee (2016-17) |
| University: | Member, Research and Curriculum Committee for the National Resilient Transportation (NRT) Program (2018- ) |

### Prior to Clemson

| | |
|---|---|
| Department: | ME Representative, Senior Design Leadership Committee (2009-15) |
| | Area Lead, Robotics, Automation and Design Group (2013-15) |
| | Chair, Design Search Committee (2012-13) |
| | Member, ME Lecturer Search Committee (2011) |
| College: | Member, iDesign Program Working Group (2012-15) |
| | Member, Multidisciplinary Engineering Program Committee (2011-15) |
| | Member, Engineering Systems Graduate Admissions Committee (2012-15) |
| | Member, Engineering Systems QE Committee (2013-15) |
| | Member, Engineering Systems Program Working Group (2012-14) |
| | Director, Engineering Senior Design Program (2009-13) |

Lead, Senior Design Program ABET Committee (2013)

Chair, BSXE Curriculum Committee (2011)

University:    Member, Operations Research with Engineering Graduate Admissions Committee (2012-15)

Member, Operations Research with Engineering QE Committee (2013-15)

Associate Director, Operations Research with Engineering Program (2011-13)

ME Representative, Faculty Research Council (2011-13)

CSM Technical Contact for NNMI Design Proposal (2013)

Member, Faculty Research Committee (2010-12)

## Other Service

Faculty Advisor, US DOE Collegiate Wind Competition Team (2013-15).

## MISCELLANEOUS

### CSM Engineering Design Program Director (EDP)

The Engineering Design Program in the CSM College of Engineering and Computational Sciences oversees the Senior Design Program (EGGN491/2) and provides projects to MEGN591: Advanced Engineering Design Methods where appropriate. As program director (2009-2013), I was responsible for recruiting projects to the program. During this period, I was involved in recruiting 228 projects, staffed by 1457 students, with a cumulative materials budget of approximately $981,000. In addition, I was involved with securing a total of $115,200 in external gifts and grant awards to support the program.

*16 September 2018*