

BESHOY MORKOS, Ph.D.

Mechanical and Aerospace Engineering
Office: 245 Olin Engineering Complex
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Florida Institute of Technology
150 West University Blvd.
Melbourne, FL 32901

EDUCATION

<i>Ph.D. in Mechanical Engineering</i> Dissertation: Computational Representation and Reasoning Support for Requirements Change Management in Complex System Design <i>Recipient of 2014 ASME CIE Dissertation of the Year Award</i> Clemson University	2012 Clemson, SC
<i>Certificate, Engineering and Science Education</i> Emphasis in Teaching Undergraduate Engineering Clemson University	2012 Clemson, SC
<i>Masters of Science in Mechanical Engineering</i> Emphasis in Engineering Design Clemson University	2008 Clemson, SC
<i>Bachelor of Science in Mechanical Engineering</i> Minor in Sociology Clemson University	2006 Clemson, SC

ACADEMIC APPOINTMENTS

<i>Florida Institute of Technology</i> Assistant Professor	Melbourne, FL Aug 2012 – Present
<i>Clemson University</i> Postdoctoral Scholar	Clemson, SC Jan 2012 – Aug 2012

RESEARCH EXPERIENCE

Florida Institute of Technology – Dept. of Mechanical & Aerospace Engr. Assistant Professor	Melbourne, FL Aug 2012 – Present
<ul style="list-style-type: none">Created and Directed the Systems Research in Intelligent Design and Engineering (STRIDE) Lab to perform research on systems design, computational reasoning and representation, model based engineering, and engineering educationDeveloped collaborations with local industry partners such as Harris, Northrop Grumman, Lockheed Martin, United Launch Alliance, and NASA JPL for industry sponsored projects focused on Systems Design and ManufacturingEstablished Design and Manufacturing research and educational focus at universitySecured ~\$2.8M in funding (\$1.4M as Principal Investigator) in 5 yearsGraduated 5 M.S. Students. Currently advising 3 Ph.D. and 6 M.S. students	
Clemson University – College of Engineering and Science Postdoctoral Researcher	Clemson, SC Jan 2012 – Aug 2012
<ul style="list-style-type: none">Worked with Dr. Lisa Benson on NSF funded (CAREER award) research investigating motivation of first year engineering students and its relation to persistence in engineeringDevelop a model for analyzing what relationships exist between motivation factors and persistence in majoring in engineeringAnalyzed data across multiple engineering disciplines, cultures, and gender to develop deeper understanding of engineering persistencePresented work in NSF Engineering Education Awardees Conference	

BMW Information Technology Research Center

Greenville, SC

Research Associate

May 2008 – July 2009

- Developed engineering requirement specifications to aid in designing and prototyping Microsoft Surface concept showcasing its ability and potential in serving as an interactive automotive sales, retail, and financing tool
- Gathered and interpreted data collected from project stakeholders to develop hierarchy of engineering requirements that served as a medium of communication between programmers, design team and end users
- Collaborated with programmers through use of requirement specifications to assist in developing user interface, software content, usability features, and software architecture
- Performed applicability assessment of mobile technology to identify domains with BMW where technology may be implemented

Clemson University – Department of Mechanical Engineering

Clemson, SC

Research Associate

Jan 2006 – Dec 2011

- Worked on multiple sponsored projects with companies such as Michelin, BMW, NASA-JPL, and Automation Engineering Corporation
- Met with sponsors on a (bi)weekly basis where results of modeling and analysis were documented and presented
- Designed, developed, and validated conceptual prototypes of final solution to meet sponsor requirements and governmental regulations
- Authored 4 journal article, as well as fifteen (15) conference papers which I presented at various conferences
- Taught for seven semesters (7) to over four hundred (400) students

FUNDING SECURED**Research: \$1,357,695****Applied: \$1,479,592****Total: \$2,837,287 (Morkos' Portion as PI: \$1,421,287)****System Design Research**

- **Morkos, B.**, (PI), 2017, "Modeling and Analysis of Virtual Aircraft System", **Northrop Grumman Corporation**, \$9,000
- **Morkos, B.** (PI), 2017, "Design and Analysis of Complex System", **Lockheed Martin**, \$20,000 (Phase I & II)
- **Morkos, B.** (PI), 2015, "Exploring Requirement Transiency: Measuring Volatility Through Network Models", **National Science Foundation (NSF)**, \$260,839

Manufacturing Research

- **Morkos, B.** (PI), Sen, C., 2015, "Investigation of Manufacturing Processes to improve Manufacturing and Handling of Circuit Boards", **MC Assembly**, \$15,000
- **Morkos, B.** (PI), 2015, "Exploring Additive Manufacturing in Martian Environments", **NASA JPL**, \$25,000

Education Research

- Kaplinger, B., (PI), **Morkos, B.** (PI), 2016, "Effectiveness of Naval Related STEM Education Programs in Engineering Persistence", **Office of Naval Research (ONR)**, \$748,606
- **Morkos, B.** (PI), Sen, C. (Co-PI), Walton, A. (Co-PI), 2015, "Adopting the KEEN Philosophy at Florida Tech", **The Kern Entrepreneurial Engineering Network**, \$276,000
- **Morkos, B.** (PI), 2015, "NSF Pathways at Florida Tech", **NSF EpiCenter VentureWell**, \$2,250.

Applied Engineering

- Sauerma, G. (PI), Tsark, G. (Co-I), Grieves, M. (Co-I), Walton, A. (Co-I), **Morkos, B.** (Co-I), Kirk, D. (Co-I), Shaikh, M. (Co-I), Seeley, M. (Co-I), 2015, "Center for Advanced Manufacturing and

Innovative Design (CAMID)", **Economic Development Agency (EDA)**, Total: \$1,416,000

- **Morkos, B.** (PI), Kirk, D. (CoPI), 2015, "Establishment of College of Engineering Fabrication Laboratory", **Rockwell Collins**, \$9,500
- Walton, A. (PI), **Morkos, B.** (Co-PI), 2016, "Development of IoT Educational Content", PTC, \$30,000
- Kirk, D. (PI), **Morkos, B.** (CoPI), 2014, "The Rockwell Collins Flight Test Engineering Avionics Laboratory", **Rockwell Collins**, \$24,092
- **Morkos, B.** (PI), 2014, "Stereo Vision Tracking for Cube Satellite", **NASA JPL**, \$1,000

PUBLICATIONS

Book Chapters

1. Mears, L., Ziegert, J., Roth, J. T., **Morkos, B.**, 2010. Manufacturing Quality Assessment and Control. In S. N. Melkote, Handbook of Manufacturing, Ch. 12.

Journal Publications (10 published/accepted, 1 pending revisions, 1 submitted)

1. **Morkos, B.**, Shankar, P., Teegavarapu, S., Michaelraj, A., Summers, J.D., 2009. Conceptual Development of Automotive Forward Lighting System Using White Light Emitting Diodes, *SAE International Journal of Passenger Cars – Electronic and Electrical Systems*, 2(1), pp. 201-211. *(Selected as a best paper at the 2009 SAE Congress with the Arch T. Colwell Merit Award)*
2. **Morkos, B.**, Taiber, J., Summers, J., Mears, L., Fadel, G., 2012. Mobile Devices within Manufacturing Environments: A BMW Applicability Study, *International Journal on Interactive Design and Manufacturing*. 6(2), pp. 101-111. DOI: 10.1007/s12008-012-0148-x.
3. Shankar, P., **Morkos, B.**, Summers, J. D., 2012. Reasons for Change Propagation: A Case Study In An Automotive OEM, *Research in Engineering Design*, 23(4), pp 291-303, DOI:10.1007/s00163-012-0132-2
4. **Morkos, B.**, Shankar, P., & Summers, J. D., 2012. Predicting Requirement Change Propagation Using Higher Order Design Structure Matrices: An Industry Case Study. *Journal of Engineering Design*. 23(12), pp. 905-926, DOI: 10.1080/09544828.2012.662273
5. **Morkos, B.**, Summers, J. D., 2013. A Study of Designer Familiarity with Product and User During Requirement Elicitation, *International Journal of Computer Aided Engineering and Technology (IJCAET)*. 5(2/3), pp. 139-158. DOI: 10.1504/IJCAET.2013.052934
6. **Morkos, B.**, Summers, J., Thoe, S., 2013. A Comparative Survey of Domestic and International Experiences in Capstone Design, *International Journal of Engineering Education*, 30(1), pp. 79-90.
7. **Morkos, B.**, Mathieson, J., Summers, J.D., 2014. Comparative Analysis of Requirements Change Prediction Models: Manual, Linguistic, and Neural Network, *Research in Engineering Design*, 25(2), pp. 139-156. DOI 10.1007/s00163-014-0170-z
8. Htet Hein, P., Voris, N., **Morkos, B.**, 2017. Investigating Requirement Change Propagation Through the Physical and Functional Domain, *Research in Engineering Design*, DOI: 10.1007/s00163-017-0271-6
9. Yadav, D., Patel, D., **Morkos, B.**, 2017, "Development of Product Recyclability Index Utilizing Design for Disassembly", *Journal of Manufacturing Science of Engineering*, Accepted, In Production.
10. **Morkos, B.**, Dochibhatla, S., V. S., Summers, J., 2017, "Effects of Metal Foam Parameters on Fluid Flow Permeability", *ASME Journal of Journal of Thermal Science and Engineering Applications*, Revisions Submitted
11. Joshi, S., **Morkos, B.**, Summers, J., 2017, "Investigating the Impact of Requirements Elicitation and Evolution on Course Success in Senior Design", *Journal of Engineering Design*, Pending Revisions
12. Joshi, S., **Morkos, B.**, Summers, J., 2017, "Mapping Problem and Requirements to Final Solution: A Document Analysis of Capstone Design Projects", *International Journal of Mechanical Engineering Education*, Submitted

Conference Proceedings (36 peer-reviewed)

1. Teegavarapu, S., Shankar P., **Morkos, B.**, Kanda, A., Michaelraj, A., Summers, J., Obieglo, A., 2009. A Morphological, Combinatory Tool for Design of Low-Gap Automotive Body Panels. SAE World Congress and Exhibition, Detroit, MI, Reliability and Robust Design in Automotive Engineering, No. 2009-01-0342.

2. **Morkos, B.**, Shankar, P., Teegavarapu, S., Michaelraj, A., Summers, J., Obieglo, A., 2009. Conceptual Development of Automotive Forward Lighting System Using White Light Emitting Diodes. *SAE World Congress and Exhibition*. Detroit, MI. Virtual Design and Engineering, 2009-01-0593. **SAE Arch T. Colwell Merit Award Recipient.**
3. **Morkos, B.**, Summers, J., 2009. Elicitation and Development of Requirements through Integrated Methods. *ASME International Design Engineering Technical Conference*. San Diego, CA, Aug. 30-Sep 2, 2009, CIE-DETC2009-87720.
4. **Morkos, B.**, Mathieson, J., Summers, J. D., Jaret, M., 2010. Development of NASA Endurance Testing Apparatus Simulating Wheel Dynamics and Environment on Lunar Terrain. *SAE World Congress and Exhibition*. Detroit, MI, Tire and Wheel Technology, No. 2010-01-0765.
5. **Morkos, B.**, Palmer, G. S., 2010. A Study of Designer Familiarity with Product and User during Requirement Elicitation. *Eighth International Symposium on Tools and Methods of Competitive Engineering*. Ancona, Italy.
6. **Morkos, B.**, Summers, J. D., 2010. Implementing Design Tools in Capstone Design Projects: Requirements Elicitation through Use of Personas. *Capstone Design Conference*. Boulder, CO.
7. Palmer, G. S., **Morkos, B.**, Summers, J. D., 2010. Investigation of Design Tools as Complexity Management Techniques. *ASME International Design Engineering Technical Conference*. Montreal, Canada, August, 2010, DETC2010-28554.
8. **Morkos, B.**, Summers, J. D., 2010. Requirement Change Propagation Prediction Approach: Results from an Industry Case Study. *ASME International Design Engineering Technical Conference*. Montreal, Canada, August, 2010, DETC2010-28562.
9. Shankar, P., **Morkos, B.**, Summers, J. D., 2010. A Hierarchical Modeling Scheme with Non Functional Requirements. *ASME International Design Engineering Technical Conference*. Montreal, Canada, August, 2010, DETC2010-28544.
10. McLellan, J., **Morkos, B.**, Mocko, G. G., Summers, J. D., 2010. Requirements Modeling Systems for Mechanical Design: A Systematic Method for Evaluating Requirement Management Tools and Languages. *ASME International Design Engineering Technical Conference*. Montreal, Canada, August, DETC2010-28989.
11. **Morkos, B.**, Joshi, S., Summers, J. D., Mocko, G. G., 2010. Requirements and Data Content within Industry In-House Developed Data Management System. *ASME International Design Engineering Technical Conference*. Montreal, Canada, August, DETC2010-28548.
12. **Morkos, B.**, Summers, J., Mears, L., Rilka, T., Taiber, J., Fadel, G., 2010. Applicability Evaluation of Mobile Devices for Use within Manufacturing Environments. *Proceedings of IDMME - Virtual Concept*. Bordeaux, France.
13. **Morkos, B.**, Joshi, S., Summers, J. D., 2011. International Capstone Design in Mexico: Student Experience and Takeaways. *Harvey Mudd Workshop*. Claremont, CA.
14. Hess, T., **Morkos, B.**, Bowman, M., Summers, J.D., 2011. Cross Analysis of Metal Foam Design Parameters for Achieving Desired Fluid Flow. *ASME International Mechanical Engineering Congress & Exposition*, Denver Colorado, November, IMECE2011-64916.
15. Joshi, S., **Morkos, B.**, Summers, J., 2011. Mapping Problem and Requirements to Final Solution: A Document Analysis of Capstone Design Projects. *ASME International Design Engineering Technical Conferences and Computers and Information in Engineering Conference*, Washington, DC, DETC2011-47154.
16. Joshi, S., **Morkos, B.**, Summers, J., 2011. Requirements In Engineering Design: What Are We Teaching? *Ninth International Symposium on Tools and Methods of Competitive Engineering*. Karlsruhe, Germany.
17. Kirn, A., **Morkos, B.**, Benson, L., 2012. How Differences in Student Motivation Characterize Differences between Engineering Disciplines. *Frontiers in Education Conference*. Seattle, Washington
18. Joshi, S., **Morkos, B.**, Summers, J.D., 2012. Requirements Analysis: Case study with Capstone Design Project. *Capstone Design Conference*, Champaign-Urbana, IL.
19. **Morkos, B.** Summers, J., 2012. Representation: Formal Development and Computational Recognition of Localized Requirement Change Types. *ASME International Design Engineering Technical Conferences and Computers and Information in Engineering Conference*, Chicago, IL.
20. Van Dyken, J., Grigg, S., **Morkos, B.**, Benson, L., 2013. Process Analysis as a Feedback Tool for Development of Engineering Problem Solving Skills, *ASEE Annual Conference & Exposition*, Atlanta, GA.
21. Benson, L., Kirn, A., **Morkos, B.**, 2013. Student Motivation and Learning in Engineering, *ASEE Annual Conference & Exposition*, Atlanta, GA.

22. Joshi, S., Summers, J. D., **Morkos, B.**, 2014. Requirements Evolution: Impact of Functional and Non-Functional Change on Project Success, *ASME International Design Engineering Technical Conferences and Computers and Information in Engineering Conference*, Buffalo, NY, DETC2014.
23. Bessette, A., Okafor, V., **Morkos, B.**, 2014. Correlating Student Motivation to Course Performance in Capstone Design, *ASME International Design Engineering Technical Conferences and Computers and Information in Engineering Conference*, Buffalo, NY, DETC2014-35506.
24. Htet Hein, P., Menon, V., **Morkos, B.**, 2015. Exploring Requirement Change Propagation Through The Physical And Functional Domain, *ASME International Design Engineering Technical Conferences and Computers and Information in Engineering Conference*, Boston, MA, DETC2015-47746.
25. Bessette, A., **Morkos, B.**, Sangelkar, S., 2015. Improving Senior Capstone Design Student Performance through Integration of Presentation Intervention Plan, *ASME International Design Engineering Technical Conferences and Computers and Information in Engineering Conference*, Boston, MA, DETC2015-47604.
26. **Morkos, B.**, Walton, A., Patel, D., Paquette, G., 2016. Applying An Entrepreneurial Mindset To Internet Of Things: A Case Study, *11th International Symposium on Tools and Methods of Competitive Engineering*. Aix-en-Provence, France
27. Schmitt, E., **Morkos, B.**, 2016. Teaching Students Designer Empathy in Senior Design Capstone. *Capstone Design Conference*, Columbus, OH.
28. Schmitt, E., Kames, E., **Morkos, B.**, Conway, T., 2016. Designing with a Lack of Empathy: A Senior Design Project Experience, American Society of Engineering Education Annual Conference, New Orleans, LA
29. Bessette, A., **Morkos, B.**, Sangelkar, S., 2016. Motivational Differences Between Senior and Freshman Engineering Design Students: A Multi-Institution Study, *ASME International Design Engineering Technical Conferences and Computers and Information in Engineering Conference*, Charlotte, NC, DETC2016-60341
30. Paquette, G., Patel, D., **Morkos, B.**, Bessette, A., 2016. Exploring the Use of Reverse Engineering as a Means to Introduce Engineering to Middle School Students, *ASME International Design Engineering Technical Conferences and Computers and Information in Engineering Conference*, Charlotte, NC, DETC2016-60358
31. Yadav, D., Patel, D., **Morkos, B.**, 2017. Utilizing Design for Assembly Principles to Predict Product Recyclability, *ASME International Design Engineering Technical Conferences and Computers and Information in Engineering Conference*, Cleveland, OH, DETC2017-67950
32. Htet Hein, P., **Morkos, B.**, Sen, C., 2017. Utilizing Node Interference Method and Complex Network Centrality Metrics to Explore Requirement Change Propagation, *ASME International Design Engineering Technical Conferences and Computers and Information in Engineering Conference*, Cleveland, OH, DETC2017-67930
33. Kames, E., Zaremba, R., **Morkos, B.**, 2017. Analyzing Composite Material Manufacturing Methods Using Failure Modes Effect Analysis, *ASME International Design Engineering Technical Conferences and Computers and Information in Engineering Conference*, Cleveland, OH, DETC2017-67368
34. Dochibhatla, S.V.S, Bhattacharya, M., **Morkos, B.**, 2017. Evaluating Assembly Design Efficiency: A Comparison Between Lucas And Boothroyd-Dewhurst Methods, *ASME International Design Engineering Technical Conferences and Computers and Information in Engineering Conference*, Cleveland, OH, DETC2017-68126
35. Piazza, A., Bielanos, K., **Morkos, B.**, 2017. Exploration of Various Methods for Cost Considerations in Additive Manufacturing, *ASME International Design Engineering Technical Conferences and Computers and Information in Engineering Conference*, Cleveland, OH, DETC2017-68405
36. Lynch, P., Sangelkar, S., Demeo, G., **Morkos, B.**, 2017. The I-C-D-M Methodology: Improving Undergraduate Engineering Student Motivation, Satisfaction, and Performance, *IEEE Frontiers in Education Conference*, Indianapolis, Indiana

Poster Sessions (3 posters)

1. **Morkos, B.**, (2012). Development of Requirement Evolution Modeling Tool. *ASME International Design Engineering Technical Conference*, San Diego, CA.
2. Benson, L., **Morkos, B.**, (2012). Assessing Motivation of Engineering Students using Expectancy-Value and Future Time Perspective Theoretical Frameworks. *National Science Foundation Engineering Education Awardees Conference*, Arlington, VA. Paper no. 116.
3. Benson, L., Kirn, A., and **Morkos, B.**, CAREER: Student Motivation and Learning in Engineering. NSF Grantees Poster Session at the ASEE 2013 Conference, June 23-26, Atlanta, GA.

TEACHING EXPERIENCE

Undergraduate: 6 unique courses

Graduate: 4 unique courses

Total: 10 unique courses

MAE2082 – Applied Mechanics: Dynamics (Sophomores)	Florida Tech
Semesters (1): Sp12,	
MAE3090 – Design of Machine Elements (Juniors)	Florida Tech
Semesters (1): Sum15,	
MAE4024 – Mechanical Vibrations (Seniors)	Florida Tech
Semesters (8): Fa12, Sum13, Fa13, Sum14, Sum15, Fa15, Sum16, Sum17	
MAE4190 – Design Methodologies (Juniors)	Florida Tech
Semesters (6): Sp13, Sp14, Sp15, Sp16, Sp17, Sum18	
MAE4193 – Mechanical Engineering Design 1 (Seniors)	Florida Tech
Semesters (5): Fa13, Fa14, Fa15, Fa16, Fa17	
MAE4194 – Mechanical Engineering Design 2 (Seniors)	Florida Tech
Semesters (4): Sp14, Sp15, Sp16, Sp17	
MAE5850 – Automotive Manufacturing Processes (Grad)	Florida Tech
Semesters (1): Fa17	
MAE5890 – Design for Manufacturing (Grad)	Florida Tech
Semesters (1): Fa16	
MAE5680 – Advanced Manufacturing Processes (Grad)	Florida Tech
Semesters (1): Fa14	
SYS5318 – Model Based Systems Engineering (Grad)	Florida Tech
Semesters (1): Sum14	
ME312 – Manufacturing Processes and Their Application (Juniors/Seniors)	Clemson University
Semesters (6): Fa09, Sp10, Fa10, Sp11, Fa11, Sp12	
ME312 Online – Online Manufacturing Processes and Their Application	Clemson University
Semesters (2): Sum11, Sum12	
ME 402 – International Senior Design Capstone - Mexico (Seniors)	Clemson University
Semesters (2): Sum11, Sum12	
ME 402 - Senior Design Capstone (Seniors)	
Co-Instructed	Clemson University

STUDENTS ADVISED
STRIDE Lab Alumni (5 M.S.)

1. George Vrampas, Towards the Development of a Method to Utilize Gaze Data to Obtain Customer Feedback on Product Designs, 2016
2. Phyto Htet Hein, Predicting Requirement Change Propagation through Investigation of Physical and Functional Domains, M.S., Mechanical Engineering, 2015
3. Varun Menon, Utilizing Complex Networks Theoretic to Requirement Change Propagation Models, M.S. Thesis, Mechanical Engineering, 2015

4. Amanda Bessette, Correlating Student Motivation to Performance in Engineering Design Courses, M.S. Thesis, Mechanical Engineering, 2015
5. Vitalis Okafor, Utilizing Gaze Data to Develop Product Preference Design Models: Incorporating Eye Tracking in Product Design, M.S., Mechanical Engineering, 2015

Current Graduate Students (3 Ph.D. & 7 M.S. Students)

1. Phyo Htet Hein, Ph.D. Candidate
2. Lisa Kames, Ph.D. Student
3. Deep Patel, Ph.D. Student
4. Tyler Johnson, M.S. Student
5. Andrea Piazza, M.S. Student
6. Elizabeth Schmitt, M.S. Student
7. David Thiess, M.S. Student
8. Nate Voris, M.S. Student
9. Darshan Yadav, M.S. Student
10. Devanshi Shah, M.S. Student

PROFESSIONAL ENGINEERING EXPERIENCE

Engineer in Training No. 17928, South Carolina

2006

Robert Bosch Corporation

Anderson, SC

Electronic Control Unit Engineering Intern

Jan 2005 – Dec 2005

- Employed Lean Manufacturing using Toyota Production System (TPS), Six Sigma and Shainin techniques and Methods
- Responsibilities included:
 - Implement effective means of improving preventive maintenance
 - Order and oversee installation of new machinery for facility
 - Create fixtures to reduce machine switch-over time with easier handling
 - Optimize assembly line configurations to decrease cycle time of parts
 - Designed solutions to mitigate problems that could cause machine down time
 - Help improve ergonomics of workplace by decreasing workplace hazards

SPONSORED PROFESSIONAL PROJECTS

I was involved in the following projects as a Graduate Student at Clemson University:

Michelin/NASA Jet Propulsion Laboratory

Aug 2006 – Aug 2008

Development of Lunar Capable NonPneumatic Wheel

\$1,500,000

- Redesign Michelin's TWEEL, a revolutionary tire/wheel technology, for use on a NASA Lunar Rover
- Designed and prototyped TWEEL capable of surviving both the landing stress and dynamic driving stress of a lunar environment and is impervious to puncture
- Developed TWEEL testing mechanism designed to simulate lunar environment

BMW

Dec 2006 – Dec 2007

Manufacturing Lightweight Engineering

\$79,755

- Reduced vehicle mass through intelligent application of new manufacturing and assembly technologies
- Developed a comprehensive model of the interactions of assembly and manufacturing related decisions with mass allocation in a vehicle

BMW

Dec 2006 – Dec 2007

LED Headlight Design

\$79,755

- Implemented LED technology into the headlight of the BMW X5 to replace existing High Intensity

- Discharge (HID) system
- Ensure headlight design meets United Nations Economic Commission for Europe (UNECE) Transportation Division regulations
- Managed the thermal and optical characteristics of the system to ensure proper functionality and behavior

GRADUATE STUDENT FELLOWSHIPS AND AWARDS

I secured the following funding as a Graduate Student at Clemson University:

▪ ASME Graduate Teaching Fellowship	\$60,000	Aug 2009 – Aug 2011
▪ NSF Harvey Mudd Aid Fellowship	\$1,600	May 2011
▪ NSF/ASME Travel Award	\$1,250	August 2009
▪ NIST Student Travel Grant	\$1,000	August 2009
▪ NSF/ASME Travel Award	\$1,250	September 2007

HONORS, ACTIVITIES, AND SERVICE

Awards

- **Rising Star Researcher**, Florida Tech, 2017. Awarded to the top research grossing faculty in the university amongst all ranks. Was one of five selected within the College of Engineering and one of the top 15 within the university.
- **One to Watch**, Florida Today Newspaper, 2015.
- **ASME CIE Dissertation of the Year Award**, 2014. Awarded to only two individuals internationally per year. The Top Dissertation Award recognizes promising young investigator who authored the best Ph.D. dissertation in the area of computers and information in engineering. Awardees are selected based on the novelty of their research, its potential and current impact, the quality of associated research methodology and analysis, and the overall quality of the written dissertation, 2014
- **Young Professor Award** selected by the Florida Institute of Technology ASME Student Chapter, 2014
- **ASME Graduate Teaching Fellowship Award**. Awarded to only two individuals nationally per year. Taught ME312 – Manufacturing Processes and Their Application during the Fall 2009, Spring 2010, Summer 2010, Fall 2010, Spring 2011, Summer 2011, and Fall 2011 semesters. Started an online class of ME312 during Summer 2010. Summer class was first of its kind in ME312. Class received positive feedback from students and will be an available class every summer, 2009-2011
- **Arch T. Colwell Merit Outstanding Paper Award** recipient for SAE paper, # 2009-01-0593, “Conceptual Development of Automotive Forward Lighting System Using White Light Emitting Diodes,” 2009
- **“Rookie of the Year” Professor** selected by the Clemson University ASME Student Chapter, 2010.
- **ASME CIE CAPPD Graduate Research Poster Award**, (2009), for the poster “Development of Requirement Evolution Modeling Tool.”
- **Winner of 2007 NSF/ASME Graduate Design Essay Competition** for “Genetic Based Strategic Design,” ASME International Design Engineering Technical Conference, Las Vegas, NV.
- **Winner of 2009 NSF/ASME Graduate Design Essay Competition** for “Biologically Inspired Manufacturing Systems,” ASME International Design Engineering Technical Conference, San Diego, CA.
- **Dean’s List Award**. Recipient of Dean’s List award during multiple semesters in undergraduate education at Clemson University.
- **Charles Henry Chapman Scholarship** recipient at Clemson University, 2002.
- **Joseph Emory Sirrine Scholarship** recipient at Clemson University, 2002-2006.
- **Life Scholarship** recipient at Clemson University, 2002–2006.

Publications Reviewed

Books

- Kalpakjian, S., Schmid, S., Manufacturing Processes for Engineering Materials, 7th Edition

Journals

- Journal of Engineering Design
- Research in Engineering Design Journal
- International Journal of Engineering Education
- Journal of Computing and Information Science in Engineering
- Journal of Mechanical Design
- Journal of Engineering and Technology Management
- Systems Engineering
- Learning and Individual Differences

Conference Proceedings

- International Design Engineering Technical Conference
- International Conference on Engineering Design
- International Journal of Engineering Education
- American Society of Engineering Education Conference
- Capstone Design Conference

Research Committees

- | | |
|---------------------------------------------------------------|----------------|
| ▪ ASEE Design Engineering Education Division, Director | 2017 – Present |
| ▪ ASME DETC Design Education Conference, Chair | 2017 – Present |
| ▪ ASME DETC Design Education Conference, Vice Chair | 2015 – 2017 |
| ▪ ASME DETC Review Coordinator – Design Automation Conference | 2012 – Present |
| ▪ ASME DETC Review Coordinator – Design Education Conference | 2012 – Present |

Memberships

- | | |
|-----------------------------------------------------------|----------------|
| ▪ Member, American Society of Mechanical Engineers, ASME | 2007 – Present |
| ▪ Member, Society of Automotive Engineers, SAE | 2007 – Present |
| ▪ Member, American Society of Engineering Education, ASEE | 2015 – Present |

Community Activities

- | | |
|----------------------------------------------------------------|----------------|
| ▪ Reverse Engineering Workshops in Brevard Country | 2012 – Present |
| ▪ Habitat For Humanity | 2002 – 2012 |
| ▪ Future Engineers Elementary, Middle, and High School Program | 2009 – 2012 |
| ▪ Relay For Life (American Cancer Society) | 2002 – 2012 |
| ▪ Meals on Wheels Community Service | 2002 – 2012 |

SKILLS AND QUALIFICATIONS**Simulation Tools**

- | | |
|------------------------|----------------------------|
| ▪ AutoDesk
AutoCAD | ▪ Solid Edge
GibbsCAM |
| ▪ AutoDesk
Inventor | ▪ NX Unigraphics
AMESim |
| ▪ Solid Works | |

Technical Computing

- Maple
- MATLAB

Statistical Tools

- R
- SAS

Languages

- Arabic
(spoken fluently)
- American Sign
Language