

Curriculum Vitae

Vimal Viswanathan, Ph.D.

Assistant Professor, Mechanical Engineering Department, San Jose State University

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Google Scholar Profile: <http://scholar.google.com/citations?user=jp1nqTIAAAAJ&hl=en>

ACADEMIC POSITIONS

- **Assistant Professor** (Aug 2016 – present), Mechanical Engineering Department, San Jose State University, San Jose, CA (Research Area: Engineering Design, Mechatronics Systems, Design Theory, Engineering Education)
 - Director: Innovation, Design Engineering & Analyses (IDEA) Lab
 - Faculty advisor: Spartan Hyperloop
- **Assistant Professor** (Jan 2014 – July 2016), Department of Mechanical Engineering, **Tuskegee University**, Tuskegee, AL (Research Area: Engineering Design, Mechatronics Systems, Design Theory, Engineering Communication, Engineering Education)
 - ABET co-ordinator of the Mechanical Engineering Department
 - Director – Mechatronics Lab
- **Post-doctoral Research Associate** (Nov 2012 – Jan 2014), The George W. Woodruff School of Mechanical Engineering, **Georgia Institute of Technology**, Atlanta, Georgia (Research Area: Engineering Design, Idea Generation, Engineering Education)
- **Instructor – Sophomore Design Course** (Aug 2013 – Dec 2013), The George W. Woodruff School of Mechanical Engineering, **Georgia Institute of Technology**, Atlanta, Georgia
- **Research Assistant** (Oct 2008 – Oct 2012), Mechanical Engineering Department, **Texas A&M University**, College Station, Texas
- **Instructor – Senior Design** (Jan 2011 – May 2011), Mechanical Engineering Department, **Texas A&M University**, College Station, Texas

EDUCATION

Texas A&M University	Mechanical Engineering	PhD	2012
Texas A&M University	Mechanical Engineering	MS	2010
National Institute of Technology, Calicut, India	Mechanical Engineering	B-Tech	2005

PUBLICATIONS

* Dr. Viswanathan's graduate or undergraduate students

** Collaborative works led by and primarily written by Dr. Viswanathan / his students

Journal Publications:

1. Dei Rossi*, J., Keles, O., and **Viswanathan, V****, 2019, "Fused Deposition Modeling with Added Vibrations: A Parametric Study on the Accuracy and Mechanical Properties of Printed Parts," Journal of Manufacturing Science and Engineering (JMSE) (*in review - Submitted: September 2019*)
2. Singh*, H., Marbouti, F., and **Viswanathan****, V., 2019, Predicting Customer Ratings of New Products: A Machine Learning Approach," ASME Transactions: Journal of Mechanical Design (*In Revision – Original submission: March 2019*)

3. **Viswanathan, V.**, and Linsey, J., 2019, “Designing with Examples: A Study on the Role of Familiarity, Warnings and Physical Modeling,” *Journal of Engineering Design (in Revision – Original submission: February 2019)*
4. Sreekanth*, A., and **Viswanathan, V.**, 2019, “A Study on the Role of Computer-aided Design in Design Creativity and Education,” *Engineering Design Graphics Journal (in Review – Submitted: October 2018)*
5. **Viswanathan, V.**, Nukala*, N.R., and Solomon, J., 2018, “Improving the Understanding of Course Concepts with Engineered Course Material Delivery,” *IEEE Transactions on Engineering Education (Revised & Resubmitted – Original submission: Nov 2018)*
6. Solomon, J., **Viswanathan, V.**, Nayak, C., and Hamilton, E., 2017, “A PROTOCOL Based Blended Model for Fluid Mechanics Instruction,” *Journal of STEM Education (Submission: June 2019)*
7. **Viswanathan, V.**, Sangelkar, S., Moody, J., and Alexander*, D., 2017, “Design of Multi-purpose Products: A Study on the Customer Preferences,” *ASME Transactions: Journal of Mechanical Design (In revision – pending additional data collection)*
8. Camburn, B., **Viswanathan, V.**, Linsey, J., Jensen, D., Otto, K. and Wood, K., 2017, “Prototyping: State-of-the-art in Techniques, Methods, and Design Science,” *Design Science*, 3(13), DOI: 10.1017/dsj.2017.10.
9. **Viswanathan, V.**, Tomko, M. & Linsey, J., 2016, “A Study on the Effects of Example Familiarity and Modality on Design Fixation,” *Artificial Intelligence for Engineering Design, Analysis and Manufacturing (AI EDAM) Special Issue on Design, Computing and Cognition*, 30, pp. 171-184, DOI:10.1017/S0890060416000056.
10. **Viswanathan, V.**, Atilola, O., Esposito, N. and Linsey, J., 2014, “A Study on the Role of Physical Models in the Mitigation of Design Fixation,” *Journal of Engineering Design* 25(3), pp. 25-43, DOI: 10.1080/09544828.2014.885934.
11. **Viswanathan, V.**, and Linsey, J., 2014, “Spanning the Complexity Chasm: A Research Approach to Move from Simple to Complex Engineering Systems,” *Artificial Intelligence for Engineering Design, Analysis and Manufacturing (AI EDAM) Special Issue on Design of Complex Engineered Systems*, 28, pp. 369-384.
12. Lucero, B., **Viswanathan, V.**, Linsey, J., and Turner, C., 2014, “Identifying Critical Functions for Use Across Engineering Design Domains,” *ASME Transactions: Journal of Mechanical Design*, 136 (12), pp. 121101, DOI: 10.1115/1.4028280.
13. **Viswanathan, V.**, and Linsey, J., 2013, " The Role of Sunk Cost in Engineering Idea Generation: An Experimental Investigation", *ASME Transactions: Journal of Mechanical Design* 135(12), pp. 121002, DOI: 10.1115/1.4025290.
14. **Viswanathan, V.**, and Linsey, J., 2013, "Design Fixation and its Mitigation: a Study on the Role of Expertise", *ASME Transactions: Journal of Mechanical Design*, 135 (5), pp. 051008, DOI: 10.1115/1.4024123.
15. **Viswanathan, V.**, and Linsey, J., 2013, “Examining Design Fixation in Engineering Idea Generation: The Role of Example Modality,” *International Journal of Design Creativity and Innovation*, 1(2), pp. 109-129.
16. **Viswanathan, V.**, and Linsey, J., 2012, "Physical Models and Design Thinking: A Study of Functionality, Novelty and Variety of Ideas", *ASME Transactions: Journal of Mechanical Design*, 134(9), pp. 091004, DOI: 10.1115/1.4007148.
17. Linsey, J., and **Viswanathan, V.**, 2010, “Innovation Skills for Tomorrow’s Sustainable Designers,” *International Journal of Engineering Education*, 26(2), pp. 451-461.
18. Naim, A., English, K., Lewis, K., Schmidt, S., **Viswanathan, V.**, Linsey, J., McAdams, D., Bishop, B., Campbell, M., Poppa, K, Stone, R.B., and Orsborn, S., 2010, “Impacting Designer Creativity through IT-Enabled Concept Generation.” *ASME Transactions, Journal of Computing*

and Information Science in Engineering (JCISE) Special Issue on Knowledge-Based Design, 10(3), DOI: 031007.

Journal Papers in Preparation

1. Zaidi, S., and **Viswanathan, V.****, 2019, “Design and Characterization of an Assistive Knee Brace for Physical Therapy,” ASME Transactions: Journal of Engineering and Science in Medical Diagnostics and Therapy - Special Issue on Rehabilitation Robotics (*Target submission: October 2019*).
2. Ranganath*, N., and **Viswanathan, V.**, 2019, “Robotic Warehouse Fulfillment – A New Non-prehensile Picking Concept for a Safe, Scalable and Lean Goods-to-person Automation Solution,” International Journal of Operations & Production Management (*Target submission: September 2019*)
3. **Viswanathan, V.**, 2019, “Design Fixation to Examples: A Study on the Temporal Order of Ideas”, Journal of Engineering Design (*Target submission: December 2019*)

Book Chapter:

1. Linsey, J., **Viswanathan, V.**, 2013, “Overcoming Cognitive Challenges in Bio-inspired Design and Analogy”, in A. Goel, D.A. McAdams. and R.B. Stone (Eds.) *Biologically Inspired Design: Computational Methods and Tools*, Springer, New York, pp. 221-244.

Refereed Conference Proceedings:

(Recent papers are listed first)

1. Zaidi, S., Huynh*, A., Thach*, P., Rubio*, I., Patel*, H., and **Viswanathan**, V.**, 2019, “Design and Characterization of an Automated Assistive Knee Brace for Leg Muscle Rehabilitation,” ASME's International Mechanical Engineering Congress and Exposition (IMECE 2019), Salt Lake City, UT.
2. Dei Rossi*, J., Keles, O., and **Viswanathan**, V.**, 2019, “Fused Deposition Modeling with Added Vibrations: A Parametric Study on the Accuracy of Printed Parts,” ASME's International Mechanical Engineering Congress and Exposition (IMECE 2019), Salt Lake City, UT.
3. Ihsan*, M., and **Viswanathan, V.**, 2019, “Self-powering Gyms: A Case Study on Energy Harvesting from a Static Bicycle”, ASME's International Mechanical Engineering Congress and Exposition (IMECE 2019), Salt Lake City, UT.
4. **Viswanathan, V.**, and Solomon, J., 2018, “A Study on the Student Success in a Blended Model Engineering Classroom,” ASEE Annual Conference, Salt Lake City, UT.
5. Akasheh, F., **Viswanathan, V.**, and Solomon, J., 2018, “Application of Brain-based Learning Principles to Engineering Mechanics Education: Implementation and Preliminary Analysis of Connections between Employed Strategies and Improved Student Engagement,” ASEE Annual Conference, Salt Lake City, UT.
6. Solomon, J., Nayak, C., **Viswanathan, V.**, and Hamilton, E., 2018, “A PROTOCOL Based Blended Model for Fluid Mechanics Instruction,” ASEE Annual Conference, Salt Lake City, UT .
7. Nagel*, V., Chu*, S., Forney*, J., Kosinski*, L., and **Viswanathan, V.**, 2017, "Design and Control of an Assistive Bionic Joint for Leg Muscle Rehabilitation," ASME's International Mechanical Engineering Conference and Exposition (IMECE 2017), Tampa, FL.
8. Solomon, J., **Viswanathan, V.**, Nayak, C. and Hamilton, H., 2017, “Improving Student Engagement in Engineering Classrooms using Brain-based Learning Techniques,” ASEE Annual Conference, Columbus, OH.

9. **Viswanathan, V.**, and Sangelkar, S., 2017, "Design of Multi-purpose Products: Guidelines from a User Perspective," ASME International Design Engineering Technical Conferences, Cleaveland, OH.
10. **Viswanathan, V.**, 2017, "Design Fixation to Examples: A Study on the Time Decay of Fixation," International Conference on Engineering Design (ICED), Vancouver, Canada.
11. Oni, B., and **Viswanathan, V.**, 2016, "Deaing with 'Formulaholic' – the Formulae Syndrome of the New Generation Engineering Students," First Year Engineering Experience (FYEE) Conference, Columbus, OH.
12. Solomon, J, **Viswanathan, V.**, Unnikrishnan, V., and Hamilton, E., 2016, "Course Material Delivery in Engineering using Brain-based Learning Techniques," ASEE/IEEE Frontiers in Education Conference, Erie, PA.
13. Nayak, C., **Viswanathan, V.**, and Solomon, J., 2016, "The First Step towards a Pre-requisite Knowledge Tracking Architecture for Engineering Programs", ASEE/IEEE Frontiers in Education Conference, Erie, PA.
14. Oni, B., and **Viswanathan, V.**, 2016, "Establishing Learning Communities among Engineering Freshmen through Peer-group Tutoring Program," ASEE/IEEE Frontiers in Education Conference, Erie, PA.
15. **Viswanathan, V.**, Sangelkar, S., Alexander*, D., and Moody, J., 2016, "User preferences in the Design of Multi-purpose Products: A Case Study on the Redesign of a Utility Tool," ASME International Design Engineering Technical Conferences, Charlotte, NC.
16. **Viswanathan, V.**, and Solomon, J., 2016, "Improving Student Engagement in Engineering Classrooms using Brain-based Learning Techniques," ASEE Annual Conference, New Orleans, LA.
17. Alexander*, D., Moody, J., Sangelkar, S., and **Viswanathan, V.**, 2016, "MAKER: Redesign of a Multipurpose Hardware Tool to Improve its Functionality and Marketability," ASEE Annual Conference, New Orleans, LA.
18. **Viswanathan, V.**, and Calhoun, M., 2015, "Improving Student Learning Experience in an Engineering Graphics Classroom through the Mastery Approach," ASEE Annual Conference, Seattle, WA.
19. **Viswanathan, V.**, Goodman, J., Atilola, A., and Linsey, J., 2014, "Prototyping: A Key Skill for Innovation and Life-time Learning," ASEE/IEEE Frontiers in Education Conference, Madrid, Spain.
20. Esposito, N., **Viswanathan, V.**, and Linsey, J., 2014, "A Study on the Factors Influencing the Usage of Environmentally Friendly Products," ASEE Annual Conference, Indianapolis, IN.
21. **Viswanathan, V.**, Ngo, P., Turner, C., and Linsey, J., 2013, "Innovation in Graduate Projects: Learning to Identify Critical Functions," ASEE/IEEE Frontiers in Education Conference, Oklahoma City, OK.
22. Camburn, B., Dunlap, B., Kuhr, R., **Viswanathan, V.**, Linsey, J., Jensen, D., Crawford, R., Otto, K., and Wood, K., 2013, "Methods for Prototyping Strategies in Engineering Design: Framework and Experimental Assessment," ASME International Design Engineering Technical Conferences, Portland, OR.
23. Ngo, P., **Viswanathan, V.**, and Linsey, J., 2013, "Principles of Analogy Usage in Design-by-Analogy: A Pilot Study," ASME International Design Engineering Technical Conferences, Portland, OR.
24. Lucero, B., **Viswanathan, V.**, Linsey, J., and Turner, C., 2013, "MetaAnalogy through Performance Specification," ASME International Design Engineering Technical Conferences, Portland, OR.
25. **Viswanathan, V.** and Linsey, J., 2013, "Training Future Designers: A Study on the Role of Physical Models," ASEE Annual Conference 2013, Atlanta, GA.

26. Camburn, B., Dunlap, B., Kuhr, R., **Viswanathan, V.**, Linsey, J., Jensen, D., Crawford, R., Otto, K., and Wood, K., 2013, "Connecting Design Problem Characteristics to Prototyping Choices to Form a Prototyping Strategy," ASEE Annual Conference 2013, Atlanta, GA.
27. **Viswanathan, V.** and Linsey, J. 2013, "Mitigation of Design Fixation in Engineering Idea Generation: A Study on the Role of Defixation Instructions," International Conference on Research into Design, Chennai, India.
28. **Viswanathan, V.** and Linsey, J., 2012, "Physical Modeling in Design Projects: Development and Testing of a New Design Method," ASEE/IEEE Frontiers in Education Conference, Seattle, WA.
29. **Viswanathan, V.** and Linsey, J., 2012, "Physical Examples in Engineering Idea Generation: An Experimental Investigation," International Conference on Design Creativity (ICDC2012), Glasgow, UK.
30. **Viswanathan, V.** and Linsey, J., 2012, "A Study on the Role of Expertise in Design Fixation and its Mitigation", 2012 ASME IDETC – Design Theory and Methodology Conference, Chicago, IL.
31. Atilola, O., **Viswanathan, V.** and Linsey, J., 2012, "A Study on the Representation of Examples in Learning Engineering Concepts", 2012 ASME IDETC – Design Education Conference, Chicago, IL.
32. **Viswanathan, V.**, Esposito, N. and Linsey, J., 2012, "Training Tomorrow's Designers: a Study on Design Fixation", ASEE Annual Conference 2012, San Antonio, TX.
33. **Viswanathan, V.** and Linsey J., 2012, "Build to Learn: Effective Strategies to Train Tomorrow's Designers", ASEE Annual Conference 2012, San Antonio, TX.
34. **Viswanathan, V.**, and Linsey, J., 2011, "Understanding Physical Models in Design Cognition: A Triangulation of Qualitative and Laboratory Studies", ASEE/IEEE Frontiers in Education Conference, Rapid City, SD.
35. Osterman, C., **Viswanathan, V.** and Linsey, J., "Teaching Capstone Design: The Influence of Problem Complexity", ASEE/IEEE Frontiers in Education Conference, Rapid City, SD.
36. **Viswanathan, V.**, and Linsey, J., 2011, "Design Fixation in Physical Modeling: An Investigation on the Role of Sunk Cost", ASME IDETC-Design Theory and Methodology Conference, Washington, DC. (*Cited by 17*)
37. **Viswanathan, V.**, and Linsey, J., 2011, "Understanding Fixation: A Study on the Role of Expertise" International Conference on Engineering Design, Kobenhavn, Denmark.
38. **Viswanathan, V.**, and Linsey, J., 2011, "Physical Models and Design Cognition: Triangulating Controlled Lab Studies with Industrial Case Studies", International Conference on Research into Design, Bangalore, India.
39. **Viswanathan, V.**, and Linsey, J. , 2010, "Work in Progress – Understanding Design Fixation: A Sunk Cost Perspective on Innovation," ASEE/IEEE Frontiers in Education Conference, Washington, D.C.
40. **Viswanathan, V.**, and Linsey, J., 2010, "Physical Models in the Idea Generation Process: Hindrance or Help?" Proceedings of the 2010 ASME IDETC-Design Theory and Methodology Conference, Montreal, Quebec, Canada. (*Cited by 22*)
41. Linsey, J., **Viswanathan, V.**, Gadwal, A., 2010, "The influence of design problem complexity on the attainment of design skills and student perceptions," IEEE EDUCON 2010, Madrid, Spain.
42. **Viswanathan, V.**, and Linsey, J., 2009, "Enhancing Student Innovation: Physical Models in the Idea Generation Process," ASEE/IEEE Frontiers in Education Conference, San Antonio, TX.

GRANTS AND FUNDING

(13 declined proposals are not listed)

Federal & External Agencies

1. *Project Title:* Experiential Learning of Engineering Concepts in Virtual Learning Environments (VLEs)
PI: Keles, O., Co-PIs: Viswanathan, V. and Marbouti, F.
Source: NSF IUSE program (**In Review** – submitted: June 2019) \$300,000 (3 years)
2. *Project Title:* Collaborative Research: Changing Homework Achievement with Mechanix Pedagogy (CHAMP)
PI: Hammond, T., *Co-PIs:* Linsey, J., Valentine, S., Talley, K., Caldwell, B., and Viswanathan, V.
Source: NSF IUSE program (**Awarded/Current** – Started: Sep 2017) \$1.5 Million (5 years)
3. *Project Title:* Collaborative Research: Tailored Instructions and Engineered Delivery Using PROTOCOLs (TIED UP)
PI: Solomon, J.; *Co-PIs:* Viswanathan, V., Unnikrishnan, V., and Hamilton, E.
Source: NSF IUSE program (**Awarded – Completed**) \$250,000 (2015-2017)
4. *Project Title:* Improving Student Engagement in Freshman Engineering Graphics using Student’s Assistant for Visualization in Engineering (SAVE)
PI: Calhoun, M.; *Co-PIs:* Viswanathan, V., Nayak, C., and Garret, L.
Source: NSF IUSE program (**Awarded – Completed**) \$300,000 (2016-2019)

SJSU & Cal-State System

5. *Project Title:* Implementation of Tailored Instructions and Engineered Delivery Using Protocols in a Mechanical Engineering Course
PI: Viswanathan, V.
Program: Time off for Exceptional Service to Students (**Awarded – Completed / Fall 2017**)

WORKSHOPS ORGANIZED

1. Solomon, J., **Viswanathan, V.**, Nayak, C., and Hamilton, E., 2017, NSF Sponsored Workshop: “Tailored Instructions and Engineered Delivery Using PROTOCOLs (TIED UP)” at ASME Annual Conference 2017, Columbus, OH.

AWARDS & ACHIEVEMENTS

- SJSU College of Engineering – **Faculty Award for Excellence in Teaching**, 2019
- **Distinguished Reviewer Status** – Elsevier for Knowledge Based Systems – Awarded Spring 2018.
- **Davidson Student Scholar Award** – Mustafa Ihsan, Development of a System to Harvest Energy from Gym Bicycles,” \$2000, Award period: Fall 2018 – Spring 2019.
- College of Engineering (SJSU) **Professional Development Award** - for presenting a paper at 2017 ASME IMECE conference, \$1500.
- **Distinguished Paper Award** in International Journal of Design Creativity and Innovation (IJDCI) for the paper “Examining Design Fixation in Engineering Idea Generation: The Role of Example Modality”.
- **Future Faculty Grant** by Academic Keys, 2012 - a very competitive grant for developing a future career in academia, \$1000.
- Selected for membership in Spring 2012 class of the Pinnacle National Honor Society.
- Won competitive **travel grants** for various conferences (Sources: ASME CAPPD, Texas A&M University’s Office of Graduate Studies travel, Graduate Student Council), 2010 -2012, \$1700 (total).
- Student Research Week at Texas A&M University, **Session & Taxonomy winner**, 2010 & 2011, Industrial Engineering Taxonomy.

- Graduate Studies Committee for Mechanical Engineering Department at Texas A&M University, **Graduate Pool Fellowship**, \$1000.
- University Topper in B-Tech, Mechanical Engineering at National Institute of Technology, Calicut, India, 2005.

OTHER SKILLS AND ACHIEVEMENTS

- Experience with ABET accreditation and data collection procedures
- Certified leader and trainer for Critical thinking Assessment Test (CAT)

RESEARCH EXPERIENCE

- **San Jose State University** (*Aug 2016 to Present*)
 - Research Interests: Engineering Design, user-centered product development, electro-mechanical systems design, teaching engineering communication, innovative ways to teach undergraduate courses
- **Tuskegee University** (*Jan 2014 to July 2016*)
 - Research Interests: Engineering Design, user-centered product development, mechatronics, electro-mechanical systems design, teaching engineering communication, innovative ways to teach undergraduate courses, improving spatial visualization skills on engineering freshmen
- **Georgia Institute of Technology** (*Nov 2012 to Jan 2014*)
Innovation, Design Reasoning, Engineering Education & Methods Lab, George W. Woodruff School of Mechanical Engineering; Supervisor: Dr. Julie Linsey
- **Texas A&M University** (*Oct 2008 – Oct 2012*)
Innovation, Design Reasoning, Engineering Education & Methods Lab; Supervisor: Dr. Julie Linsey

DESIGN PROJECTS

- *Redesign of a **multi-purpose tool for linemen** (Aug 2015 – Spring 2017), Supervisors: Dr. Vimal Viswanathan and Dr. Shraddha Sangelkar (Penn State); Students: David Alexander (Tuskegee University), Jonathan Moody (Penn State)*
- *Design of an **autonomous mechatronic system for controlling room temperature in unmonitored labs** (Aug 2015 – July 2016), Supervisors: Dr. Vimal Viswanathan; Student: Eugene Tumblin*
- *Development of **cocoa grinding machine** (Jan 2009 – May 2009), Supervisor: Dr. Julie Linsey, Texas A&M University - Developed a human-powered cocoa grinding machine for the farmers in Guatemala, which is currently in use there.*
- *Method for **mud removal from heavy duty vehicles** (Jan 2010 – May 2010), Supervisor: Dr. Julie Linsey, Texas A&M University – Generated ideas, conducted detailed design and tested proof-of-concept models*
- *Development of **coconut harvesting machine** (Aug 2008 – Dec 2008), Supervisor: Dr. Julie Linsey, Texas A&M University - Generated ideas, conducted detailed design and tested proof-of-concept models*
- *Development of **absorption air conditioning system for Maruti-800 Car** (Aug 2004 – May 2005), Supervisor: Dr. C. Muraleedharan, National Institute of Technology, Calicut, India - Designed, built and successfully tested a 1-ton Li-Br absorption air-conditioning system prototype for the most popular economy car in India (Maruti-800)*

- *Design of automobile exhaust valve cooling system (Jan 2004 – Jun 2004)*, Supervisor: Dr. C. Muraleedharan, National Institute of Technology, Calicut, India - Designed and modeled a heat pipe system for cooling the exhaust valve of an automobile engine using FEA techniques and ANSYS software

TEACHING EXPERIENCE

- **Assistant Professor – Mechanical Engineering**, San Jose State University (Aug 2016 – Present)
 - Courses taught
 - Product Design & Development (graduate)
 - Senior Design Project (senior)
 - Mechanical Design (junior)
 - Dynamics (junior)
 - Design and Graphics (freshman)
- **Assistant Professor – Mechanical Engineering**, Tuskegee University (Jan 2014 – July 2016)
 - Courses taught
 - Mechatronics (senior level)
 - Design for Manufacturing and Assembly (senior level)
 - Mechanical Design (senior level)
 - Freshman Design
 - Engineering Graphics (freshman)
 - Probability and Statistics for Manufacturing (Sophomore level)
 - Experimental Mechanics (Sophomore level)
 - E.I.T Review (FE review course)
- **Instructor – Creative Decisions and Design**, Georgia Institute of Technology (*Aug 2013 – Dec 2013*)
 - Instructor of one of the studio sessions of this sophomore design course
 - Supervised five 3-4 student teams working on their Mechatronics project competition
 - Taught Mechatronics, machining, prototyping and the design theory (customer needs understanding, literature and patent search, identification of competing products, quality function deployment, technical specifications, functional decomposition, conceptual design and design selection)
 - Received excellent rating from students
- **Instructor - Capstone Design Course**, Texas A&M University (*Jan 2011 - May 2011*)
 - Instructor of one of the design studio sessions for seniors
 - Supervised six 4 student teams completing design projects sponsored by NASA and Boeing
 - Taught various design methods and design theory (customer needs understanding, literature and patent search, quality function deployment, technical specifications, functional decomposition, conceptual design and design selection)
 - Received excellent rating from students
- **Instructor - Youth Adventure Program (K-12 outreach) – Engineering Design**, Texas A&M University (*Jul 2012*)
- **Instructor - Introduction to Design** - Department of Design, Larsen & Toubro Limited, Surat, India (*Jun 2007 – Jun 2008*)
 - Developed the syllabus for the engineering design module of the new employee training
 - Provided training for new team members about design procedures & codes
- **Instructor - Design of Machine Elements & Dynamics of Machinery**, Aspire Solutions (*Private Engineering College*), Calicut, India (*May 2005 – Jul 2005*)

INDUSTRY EXPERIENCE

- **Senior Design Engineer - Larsen & Toubro Limited**, Engineering & Construction Division, Surat, India (*Jul 2005- Jul 2008*)
 - Structural & Mechanical Design (Oil & Gas Upstream), Structural Design of offshore platforms and fabrication aids, design of piping (worked for 10 offshore platforms, for customers in India and Middle East), Design of pressure vessels, Mechanical design of waste heat recovery modules (Worked on 6 modules for various customers)
- **Summer Intern - Hindustan Machine Tools Ltd**, Cochin, India (*May 2004 – Jul 2004*)
 - Machining parts for manufacturing of machine tools, Mastered the operation of CNC Machines
- **Summer Intern - Kerala State Road Transport Corporation**, Trivandrum, India (*May 2003*)
 - Gained an overview of an automobile industry, manufacturing processes and assembly line

PROFESSIONAL POSITIONS

1. *ASEE New Engineering Educators (NEE) Division – Division Chair (2019-2020)*
2. *ASEE Mechanics Division – Secretary (2019-2020)*
3. *Session Organizer – ASME International Mechanical Engineering Congress and Exposition (IMECE) 2019, Salt Lake City, UT.*
4. *ASEE New Engineering Educators (NEE) Division – Program Chair (2018-2019)*
5. *ASEE New Engineering Educators (NEE) Division – Program Co-chair (2017-2018)*
6. *ASEE New Engineering Educators (NEE) Division – Director of Social Presence (2016 - Present)*
7. *ASEE New Engineering Educators (NEE) Division – Editor of the Newsletter (2014 – 2016)*
8. *ASEE/IEEE Frontiers in Education Conference, 2018, San Jose, CA – Member of the Steering Committee*
9. *NSF Graduate Research Fellowship Program – Panel Member (2015)*
10. *ABET coordinator for the Mechanical Engineering Department at Tuskegee University*
11. *ASME Journal of Mechanical Design (JMD) – Peer-reviewer (12 reviews)*
12. *Artificial Intelligence for Engineering Design, Analysis and Manufacturing (AI EDAM) – Peer-reviewer (7 reviews)*
13. *Journal of Engineering Education (JEE) – Peer reviewer (3 reviews)*
14. *Design Studies – Peer reviewer (3 reviews)*
15. *Knowledge Based Systems (journal) – Peer reviewer (2 reviews)*
16. *Journal of Creative Behavior – Peer reviewer (1 review)*
17. *International Journal of Design Creativity and Innovation (IJDCI) – Peer reviewer (2 reviews)*
18. *ASME International Design Engineering Technical Conferences (IDETC) – 2014 to 2017 – Review Coordinator & Symposium coordinator*
19. *ASME International Design Engineering Technical Conferences (IDETC) – 2012 to 2017 – Peer-reviewer*
20. *ASEE Annual Conference – 2012 to 2017– Peer-reviewer*
21. *ACM Creativity and Cognition Conference 2013 – Program Committee Member & Peer-reviewer*
22. *ASEE/IEEE Frontiers in Education Conference 2012, 2013, 2014 & 2015 - Peer-reviewer*
23. *Design, Computing and Cognition Conference 2012 (DCC'12), Texas A&M University, College Station, TX – Workshop Organizer*
24. *Capstone Design Expo at Georgia Tech (Spring & Fall 2013) - Judge*
25. *North American Chapter of the Design Society – member since 2016*

26. American Society of Mechanical Engineers (**ASME**) – Member since 2008
27. American Society of Engineering Education (**ASEE**) - Member since 2009
28. The Design Society – Member since 2016
29. **ASME** volunteer – Flatrock Middle School STEM symposium, Tyrone, GA – February 2015
30. Mechanical Engineering Graduate Student Organization (**MEGSO**) at Texas A&M University
 - o President (2010-2011)
 - o Newsletter chief editor (2010-2011)

OTHER PUBLICATIONS & TALKS

Conference Proceedings (not peer-reviewed):

1. Linsey, J. and **Viswanathan, V.**, 2011, "Enhancing Engineering Innovation through Physical Representation", NSF CMMI Research and Innovation Conference, Atlanta, GA.

Dissertation:

1. **Viswanathan, V.**, 2012, Cognitive Effects of Physical Models in Engineering Idea Generation Process, Texas A&M University, College Station, TX.

Masters Thesis:

1. **Viswanathan, V.**, 2010, Effects of Representations in Engineering Idea Generation Process, Texas A&M University, College Station, TX.

Poster Only Presentations:

1. Patel*, H, Madhus, N., Nairs, R., Kumars, M., Ganeshs, A., Madireddys, I., Zaidi, S., and Viswanathan, V, 2019, "Characterization of Sensors employed in an automated Knee Brace for Leg Muscle Rehabilitation," Southern California Conferences for Undergraduate Research (SCCUR), San Marcos, CA
2. **Viswanathan, V.** and Sangelkar, S., 2016, "Design of Multi-purpose Products: A Study on User Expectations," International Conference on Design Creativity, Atlanta, GA.
3. **Viswanathan, V.**, and Linsey, J., 2012, "Build to Learn: An Effective Strategy to Train Tomorrow's Designers," 2012 ASEE Annual Conference, San Antonio, TX.
4. **Viswanathan, V.**, and Linsey, J., 2012, "Effects of Physical Models on Design Cognition," International Conference on Design Computing and Cognition 2012, College Station, TX.
5. **Viswanathan, V.**, and Linsey, J., 2012, "Mitigation of Fixation through Negative Examples through Physical Modeling," International Conference on Design Computing and Cognition 2012, College Station, TX.
6. **Viswanathan, V.**, and Linsey, J., 2010, "Effects of Representations in Engineering Idea Generation Process," CIE 2010 Graduate Research Poster at the 2010 IDETC Conference, Montreal, Quebec, Canada.
7. **Viswanathan, V.**, and Linsey, J., 2010, "Physical Models in Engineering Idea Generation," Armadillo XX: The Southwest Cognition Conference, at Texas A&M University, College Station, TX.
8. Gadwal, A., Schmidt, S., **Viswanathan, V.**, and Linsey, J., 2009, "Idea Generation in Engineering Design," Armadillo: The Southwest Cognition Conference, at Rice University, Houston, TX.
9. **Viswanathan, V.**, and Linsey, J., 2009, "Evaluation of VisualizeIT: Effects of Representations on Idea Generation," CIE 2009 Graduate Research Poster at the 2009 IDETC Conference, San Diego, CA.

* Dr. Viswanathan's graduate/undergraduate students

§ High school students working on internships

Presentations & Invited Talks:

1. **Viswanathan, V.**, 2019, “Application of Brain-based Learning in an Engineering Classroom,” San Jose State University Student Success Symposium, April 2019.
2. **Viswanathan, V.**, 2011, “Product Design Theory and Methodology: An Overview,” Special invited speech as a part of Golden Jubilee Celebrations of National Institute of Technology, Calicut, India.
3. **Viswanathan, V.**, and Linsey, J., 2010, “Physical Models Supporting Design Cognition,” Armadillo XX: The Southwest Cognition Conference, at Texas A&M University, College Station, TX.

GRADUATE (MS) STUDENT SUPERVISION

Sidharth Patel	SJSU (Chair)	Fall 2019 – present
Tejas Vadra	SJSU (Chair)	Fall 2019 – present
Sadaquat Mirza	SJSU (Chair)	Fall 2019 – present
Nagar Shetti	SJSU (Chair)	Fall 2019 – present
Arlene Chander	SJSU (Chair)	Fall 2019 – present
Victoria Riedling	SJSU (committee member)	Fall 2019 – present
Dharmesh Patel	SJSU (committee member)	Fall 2019 – present
Anuj Mehta	SJSU (committee member)	Fall 2019 – present
Sebastian Brisbois	SJSU (committee member)	Fall 2019 – present
Chanel Manzanillo	SJSU (independent study)	Fall 2019
Jacob Mintz	SJSU (Chair)	Spring 2019 – present
Harsh Patel	SJSU (Chair)	Spring 2019 – present
Kent Chung	SJSU (Chair)	Spring 2019 – present
James Brahney	SJSU (Chair)	Spring 2019 – present
Nathan Jenest	SJSU (Chair)	Spring 2019 – present
Nilupa Gunaratne	SJSU (committee member)	Spring 2019 – present
Curtis Lau	SJSU (committee member)	Spring 2019 – present
Joseph Dei Rosi	SJSU (Chair)	Fall 2018 – Spring 2019
Noaman Patel	SJSU (Chair)	Fall 2018 – Spring 2019
Zaw Aung	SJSU (Chair)	Fall 2018 – Spring 2019
Summy Prasad	SJSU (committee member)	Fall 2018 – present
Narayanan Ranganath	SJSU (committee member)	Fall 2018 – Spring 2019
Huy Tran	SJSU (committee member)	Fall 2018 – Spring 2019
Jai Lor	SJSU (committee member)	Fall 2018 – Spring 2019
Srinath Pottam	SJSU (committee member)	Fall 2018 – present
Cheng-Chang Lee	SJSU (committee member)	Fall 2018 – present
Harsimran Singh	SJSU (Chair)	Spring 2018 – Fall 2018
Sohrab Singh	SJSU (committee member)	Spring 2018 – Fall 2018
Yicheng Zhu	SJSU (Chair)	Fall 2017 – Spring 2018
Nikhitha Reddy	SJSU (Chair)	Fall 2017 – Spring 2018
Navdeep Singh	SJSU (Chair)	Fall 2017 – Spring 2018
Michael Xavier	SJSU (Chair)	Fall 2017 – Spring 2018
Anusha Sreekanth	SJSU (Chair)	Fall 2017 – Fall 2018
Tri Nguyen	SJSU (committee member)	Fall 2017 – Spring 2018
Yathath Pandey	SJSU (committee member)	Fall 2017 – Spring 2018
Gaurang Goswami	SJSU (committee member)	Fall 2017 – Spring 2018

Elliot Leon	SJSU (committee member)	Fall 2017 – Spring 2018
Adam Rimmel	SJSU (Chair)	Summer 2017 – Spring 2018
Robin Dhillon	SJSU (Chair)	Spring 2017 – Spring 2018
Sunita Mistry	SJSU (committee member)	Spring 2017 – Spring 2018
Eric Tse	SJSU (committee member)	Spring 2017 – Spring 2018
Navneet Jain	SJSU (Lab director)	Spring 2017
Eugene Tumblin	Tuskegee University (Chair)	Fall 2015 – Spring 2016
Peter Ngo	Georgia Tech (supervisor)	Fall 2012 – Fall 2014
Jesse Caldwell	Georgia Tech (supervisor)	Fall 2013 – Fall 2014

UNDERGRADUATE STUDENT SUPERVISION

Mustafa Ihsan	SJSU (independent study)	Fall 2018 – Spring 2019
Nishan Natt	SJSU (independent study)	Fall 2018
Ruhuel Galzote	SJSU (independent study)	Fall 2017
Dennis Williams II	TU (Thesis advisor)	Fall 2015 - Spring 2016
David Alexander IV	TU (Thesis advisor)	Fall 2014 – Fall 2015
Donald Tyson II	TU (Thesis advisor)	Fall 2015 - Spring 2016
Michael Dennard	TU (Thesis advisor)	Fall 2014 – Spring 2015
Jordan Ford	Tuskegee University	Fall 2014 – Spring 2015
Fabien Durand	Georgia Tech	Fall 2012 – Fall 2014
Jeffrey Lester	Georgia Tech	Fall 2012 – Fall 2014
Bradley Custard	Texas A&M University	Fall 2012 – Fall 2012
David Baker	Texas A&M University	Fall 2011 – Spring 2012
Madison McEnery	Texas A&M University	Fall 2011 – Spring 2012
Michael Garret	Texas A&M University	Fall 2009 – Summer 2011
Nicole Esposito	Texas A&M University	Fall 2009 – Summer 2011
Jared Sessions	Texas A&M University	Summer 2009 – Fall 2009
Kelsey Browner	Texas A&M University	Summer 2009 – Fall 2009
Steven Ballance	Texas A&M University	Spring 2009 – Spring 2010