VIMAL VISWANATHAN - PUBLICATIONS DURING 2008 -2017

Journal Publications:

1. Camburn, B., **Viswanathan, V.,** Linsey, J., Jensen, D., Otto, K. and Wood, K., 2016, "Prototyping: State-of-the-art in Techniques, Methods, and Design Science," Design Science (*Accepted for publication).*
2. **Viswanathan, V. ,** Tomko. M. & Linsey, J., 2015, "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 *(In Press).*
3. **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.*
4. **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.
5. 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.
6. **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.
7. **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.
8. **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.
9. **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.
10. Linsey, J., and **Viswanathan, V.**, 2010, "Innovation Skills for Tomorrow's Sustainable Designers," International Journal of Engineering Education, 26(2), pp. 451-461.
11. 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.
12. Sangelkar, S., **Viswanathan**, V., Moody, J., and Alexander, D., 2015, "Guidelines for Multipurpose Product Design based on Customer Preferences," Design Studies *(In Review – Submitted: Dec 2015)*

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 Papers & Talks:

(Recent papers are listed first)

1. **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 *(Accepted).*
2. **Viswanathan, V.,** Solomon, J., and Unnikrishnan, V., 2016, "Improving Student Engagement in Engineering Classrooms using Brain-based Learning Techniques," ASEE Annual Conference, New Orleans, LA *(Accepted)*
3. 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 (*Accepted).*
4. **Viswanathan**, V., and Calhoun, M., 2015, "Improving Student Learning Experience in an Engineering Graphics Classroom through the Mastery Approach," ASEE Annual Conference, Seattle, WA.
5. **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.
6. 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.
7. **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.
8. 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.
9. 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.
10. Lucero, B., **Viswanathan, V.,** Linsey, J., and Turner, C., 2013, "MetaAnalogy through Performance Specification," ASME International Design Engineering Technical Conferences, Portland, OR.
11. **Viswanathan, V**. and Linsey, J., 2013, "Training Future Designers: A Study on the Role of Physical Models," ASEE Annual Conference 2013, Atlanta, GA.
12. 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.
13. **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.
14. **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.
15. **Viswanathan, V.** and Linsey, J., 2012, "Physical Examples in Engineering Idea Generation: An Experimental Investigation," International Conference on Design Creativity (ICDC2012), Glasgow, UK.
16. **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.

17. 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.
18. **Viswanathan, V.**, Esposito, N. and Linsey, J., 2012, "Training Tomorrow's Designers: a Study on Design Fixation", ASEE Annual Conference 2012, San Antonio, TX.
19. **Viswanathan, V.** and Linsey J., 2012, "Build to Learn: Effective Strategies to Train Tomorrow's Designers", ASEE Annual Conference 2012, San Antonio, TX.
20. **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.
21. Osterman, C., **Viswanathan, V.** and Linsey, J., "Teaching Capstone Design: The Influence of Problem Complexity", ASEE/IEEE Frontiers in Education Conference, Rapid City, SD.
22. **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)*
23. **Viswanathan, V.**, and Linsey, J., 2011, "Understanding Fixation: A Study on the Role of Expertise" International Conference on Engineering Design, Kobenhavn, Denmark.
24. **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.
25. **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.
26. **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)*
27. 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.
28. **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.

Non-refereed Conference Papers:

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

Poster Only Presentations:

1. **Viswanathan, V.**, and Linsey, J., 2012, "Build to Learn: An Effective Strategy to Train Tomorrow's Designers," 2012 ASEE Annual Conference, San Antonio, TX.
2. **Viswanathan, V.**, and Linsey, J., 2012, "Effects of Physical Models on Design Cognition," International Conference on Design Computing and Cognition 2012, College Station, TX.
3. **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.
4. **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.

5. **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.
6. 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.
7. **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.

Invited Talks:

1. **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.
2. **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.