Jesse Austin-Breneman

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Education

Massachusetts Institute of Technology Cambridge, MA
Ph.D. Department of Mechanical Engineering, August 2014. Advisor: Maria Yang. Thesis : Aligning Stakeholder Interests Throughout the Design Process: From Complex Systems to Emerging Markets.

Massachusetts Institute of Technology Cambridge, MA
M.S. Department of Mechanical Engineering, June 2011. Advisor: Maria Yang.
Thesis: A Study of Student Design Team Behaviors in Complex System Design.

Massachusetts Institute of Technology Cambridge, MA
B.S Ocean Engineering, June 2005.

Awards

National Science Foundation Graduate Fellowship (2010-2014), Ford Foundation Graduate Fellowship (2010-2014), Carl G. Sontheimer Prize for Creativity and Innovation in Design (2009), MIT Presidential Fellowship (2009), Robert Bruce Wallace Academic Prize for Academic Excellence and Outstanding Potential for Professional Leadership in Ocean Engineering (2004)

Publications

1. Austin-Breneman, J., Yu, B. Y., and Yang, M. C., "Biased Information Passing Between Sub-systems Over Time in Complex System Design," Accepted to the 2014 ASME Design Engineering Technical Conferences.

2. Austin-Breneman, J. and Yang, M. C., "Design for Micro-Enterprise: An Approach to Product Design for Emerging Markets," ASME International Design Engineering Technical Conferences, Portland, OR 2013.

3. Austin-Breneman, J., Honda, T. and Yang, M.C. (2012) "A Study of Student Design Team Behaviors in Complex System Design." ASME Journal of Mechanical Design. 134, 124504.

4. Berns, M. S., Tsai, E., Austin-Breneman, J., Schulmeister, J. C., Sung, E., Ozaki, C. K., & Walsh, C. J. (2011). Single Entry Tunneler (SET) for Hemodialysis Graft Procedures. *Transactions of the ASME-W-Journal of Medical Devices*, *5*(2), 027524.

5. Fantone, S. J., Leitermann, O., Austin-Breneman, J., Eastment, A. S., & Crumlin, E. (2002). The autonomous underwater vehicle" Pipsqueak". In *OCEANS'02 MTS/IEEE* (Vol. 4, pp. 2497-2501). IEEE.

Presentations

Guest Lecture. (2.97 : Design for People, January 15, 2014) "Ideation Strategies for Design."

Guest Lecture. (D-Lab: Design for Scale, December 3, 2013) "User-centered Design in Emerging Markets."

Invited Talk. (Iowa State University, September 17, 2013) "Design for Micro-Enterprise: An Approach to Product Design for Emerging Markets."

Guest Lecture (Discover Product Design, August 22, 2013) "Ideation Strategies and Design for Development."

Conference Presentation (ASME Design Theory and Methodology Conference, August 6, 2013). "Design for Micro-Enterprise: An Approach to Product Design for Emerging Markets."

Teaching Experience

MIT, Department of Mechanical Engineering Cambridge MA

2.722J D-Lab: Design. Co-Instructor (Spring 2011, Spring 2013)

- Developed curriculum and lecture materials.
- Organized mentoring of student teams and shop skills projects.
- Mentored and developed curriculum for study abroad students taking class remotely from Brazil.

MIT, Department of Mechanical Engineering Cambridge, MA

2.00 Introduction to Design. Lab Instructor (Fall 2013, Fall 2012)

- Mentored student team through two product design projects
- Instructed students in shop skills
- Graded student work on an individual basis

MIT, Department of Mechanical Engineering Cambridge, MA

2.00b Toy Product Design. Team Instructor (Spring 2010)

- Mentored student team throughout design process
- Graded student work on an individual basis

Boston Latin School, Mathematics Department Boston, MA

High School Teacher (2005 – 2007)

- Achieved professional teacher status
- Developed curriculum for Mathematics classes for 8^{th}-12^{th} grade.
- Instructed students in following subjects: Algebra, Geometry, Statistics

Research Experience

MIT, Department of Mechanical Engineering Cambridge, MA

Advisor: Maria Yang (2009 – Present)

- Investigated effects of product attributes on product purchasing decisions of micro-entrepreneurs in emerging markets.
- Identified successful product development strategies for emerging markets through practitioner interviews and case studies.
- Examined effect of bias in information passing on system-level optimality in the design of satellite launch systems.
- Designed and performed experiments on effect of human-decision making on team optimality in complex system design.

MIT, Department of Ocean Engineering Cambridge, MA

Advisor: Richard Kimball (2001-2002)

- Machined and built testing systems for electromagnetic drag reduction systems
- Ran experiments test drag coefficients of electromagnetic drag reduction systems
- Trained in use of Laser Flow Velocity measurement systems

Professional Experience

Universidad de Cayetano Heridia Lima, Peru
Development Engineering Consultant (2008-2009)

Worked with team of doctors and technicians developing medical devices for use diagnosing Tuberculosis in Peru.

- Assisted with refinement of image processing algorithm for identifying tuberculosis
- Worked with team of architects designing mobile laboratory based in a shipping container
- Worked to transfer incubator technology to market-ready product
- Developed low-cost anemometers system for certifying artisanal Biological Safety Cabinets

Amazon Conservation Association Cusco, Peru
Mechanical Engineer (2007-2008)

Worked developing microenterprise projects for a conservation NGO in rural communities in the state of Cusco.

- Led community workshops identifying and prioritizing problem areas
- Designed and fabricated motorized Sacha Inchi nut sheller
- Built and tested improved cook stove prototype
- Tested and analyzed leaf dryer and essential oil distiller
- Assisted and coordinated MIT student trip to Cusco to work with rural communities

MIT Edgerton Center Cambridge, MA
Mechanical Engineer (2006-2007)

Worked as part of a two-person team to redesign Belingberg Peanut Oil Press for use in rural areas in emerging markets.

- Redesigned existing lever-driven oil press to be treadle-powered
- Machined and constructed working steel prototype
- Improved ergonomics of machine
- Designed interchangeable cam system to transfer treadle power

Professional Affiliations

American Society of Mechanical Engineers Student Member