Helen Tsai Harlan

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Objective: Engage with the future leaders of our communities, inspiring them to appreciate and pursue STEM fields

Teaching Licensure

Physics, Initial licensure	Expected: August 2013
Preliminary licensure	Received: November 2012
Physics (Secondary) MTEL	Passed: November 2012
Communication and Literacy MTEL	Passed: November 2012
English as a Second Language licensure	Received: April 2013
Moderate Disabilities (5-12) licensure	Expected: August 2013
Middle School Science/Math MTEL	Passed: April 2013

Education

Tufts University Medford, MA
Master of Arts in Teaching (Physics in Secondary Schools), Expected August 2013
Robert Noyce Teacher Scholarship Program, Academic Fellowship

Massachusetts Institute of Technology Cambridge, MA
Master of Science degree in Mechanical Engineering, June 2009 GPA: 4.9/5.0
Bachelor of Science degree in Mechanical Engineering, June 2007 GPA: 4.8/5.0
Master's Thesis**:** *Redesigning a Prosthesis for a Golfer with Transhumeral Amputation*
Bachelor's Thesis: *Design of Swimming Fins to Treat Patellofemoral Pain Syndrome*

Teaching Experience

TechBoston Academy: a Boston Public Pilot School, *Teacher Intern, August 2012 - Present* Dorchester, MA
- Full-time teaching intern in four inclusion Freshmen Physics classes, leading two of four classes
- Designing and implementing differentiated units and lesson plans to engage students in creative and analytical thinking
- Fostering strong positive relationships with students, parents, and other teachers
- Coordinating one-on-one and small group sessions to support individual learning styles

826 Boston, *Tutor, January 2012 - May 2012* Roxbury, MA
- Tutored high school students in math, science, and writing
- Attended training on *Individualized Support for Struggling Readers*

MIT Women's Technology Program, *Instructor, January - August 2009* Cambridge, MA
- Taught engineering curriculum to twenty high school girls. Modules included: Brainstorming and creativity, Statics, Motors, How Things Work, Fluid Mechanics, Manufacturing, Rube Goldberg Machines Kickoff (CAD)
- Integrated hands-on demonstration exercises and project based course work
- Documented lesson materials, preparation needed, and improvement suggestions for future program instructors
- Sought out and incorporated MIT faculty and students' ideas and experiences into lesson plans
- Read student applications and advised students selections (*2009, 2011, 2012*)
- Organized guest speakers and trips to engineering firms

PBS/WGBH - Design Squad, *Graduate Research Engineer, May - August 2007* Cambridge, MA
- Facilitated learning process of high school participants by providing on-set design and engineering instruction
- Brainstormed and developed content for 12 episodes of a reality based engineering television program
- Prototyped episode challenges with an engineering team before filming to ensure feasibility

Rube Goldberg 2007 Challenge, *Mentor at Trottier Middle School, March - April 2007* Southborough, MA
- Taught and supported a middle school class in brainstorming mechanisms for their Rube Goldberg machine
- Coached students to translate ideas into real working models

Machine Science Sumo Robots, *Mentor at English High School, March -May 2007* Jamaica Plain, MA
- Assisted students through modules on coding, electronics, and building basics

Industry Experience

Procter and Gamble, The Gillette Co., *Product Researcher, September 2009 – May 2012* Boston, MA

- Designed and implemented consumer interactions (in-depth qualitative interviews, large scale quantitative tests) to obtain input and guide next generation shaving products
- Proactively engaged multi-functional team members to key stakeholder objectives
- Identified new innovation opportunities by distilling and analyzing articulated, unarticulated data from users
- Organized roundtable discussions to promote collaboration and sharing of best practices
- Created suite of intuitive visuals to explain product benefits

MIT Robust Lab, *Graduate Researcher, May 2007 – July 2009* Cambridge, MA

- Designed a functional transhumeral (above-the-elbow) prosthetic prototype that replicated the dynamics of a two-armed golf swing
- Collaborated with a transhumeral amputee pro-golfer to uncover fundamental requirements for an improved prosthesis, iteratively tested prototypes, and gathered feedback

Essential Design, *Consumer Product Researcher, May 2008 – January 2009* Boston, MA

- Identified and summarized new insights on consumers through research, observations, and interviews
- Provided fresh viewpoints of clients' consumers to help deliver products that have market advantage
- Redesigned mobile phone application and web portal layouts to be user friendly and intuitive

BlueSteel Bicycles, *User Need Specialist/ Engineer (Senior Project), September2006 - June 2007* Cambridge, MA

- Developed a bicycle that fundamentally changed how mentally disabled children can learn to ride
- Interacted with students and physical therapists at the Cardinal Cushing School to gather needs and feedback
- Led detailed design on the rear steering module of the bicycle and fabricated components
- Filed a provisional patent on the bicycle design

Outstanding Achievements

Knowles Science Teaching Foundation Teaching Fellow, *April 2013*
Robert Noyce Teaching Scholarship Program Recipient, *Tufts, May 2012*
Jack Kent Cooke Fellowship Recipient, *August 2007*
MIT IDEAS Competition Winner, *May 2007*
MIT Mechanical Engineering Departmental Service Award Recipient, *May 2007*
MIT Tau Beta Pi: the Engineering Honor Society*, January 2006*