

## EDUCATION

### MASSACHUSETTS INSTITUTE OF TECHNOLOGY (MIT)

EXPECTED JUNE, 2011

- S.B. Course 10-B (Chemical-Biological Engineering)
- Gordon Engineering Leadership Program Fellow
- Relevant coursework: ESD.051 – Engineering, Innovation and Design, 10.26 – Chemical Engineering Consulting Projects Lab, 10.49X – Integrated Chemical Engineering Design, MAS.863 – Fabrication Lab / How to make anything (almost) anything.

## INNOVATION AND DESIGN EXPERIENCE

### IDEO // Product Design Intern

JANUARY 2011 – PRESENT, BOSTON, MA

Currently interning with a product development team redesigning and reinventing a client's core product line. Engaged in concept ideation, prototype evaluation and user testing. Brought expertise in polymers to project for selection of environmentally-friendly materials that met performance requirements, and presented recommendations to the client.

### SPORTS TECHNOLOGY INSTITUTE, LOUGHBOROUGH UNI. // Research and Design Engineer

SUMMERS 2009, 2010, LOUGHBOROUGH, UK

Developed methods for personalizing performance footwear by rapid-manufacturing spike plates for racing shoes using high-speed, selective laser sintering, and was the lead engineer in charge of design of shoe uppers. Prototyped a bespoke, anti-pronation sprint shoe for Paralympic Silver Medalist Ben Rushgrove (UK) in conjunction with New Balance. Validated the use of the GOM ARAMIS photogrammetric strain and deformation analysis system for understanding human biomechanics, and developed protocols for use in footwear and apparel design optimization. Also served as a product design consultant at spin-off company, Progressive Sports Technologies Ltd. (UK).

### SPORTS INNOVATION GROUP, MIT DEPARTMENT OF AERONAUTICS AND ASTRONAUTICS // Undergraduate Researcher

#### ASCENDURE MOUNTAIN TECHNOLOGIES // Co-founder, Developer

APRIL 2009 – PRESENT, CAMBRIDGE, MA

Conducted self-guided research regarding development and manufacture of performance materials and textiles, incorporated into product line for Ascendure Mountain Technologies. Co-founded Ascendure in 2004, an outdoor apparel and equipment company, focused on designing and manufacturing ultra-light technical equipment and apparel. Engineered several proprietary performance laminates (waterproof/breathable, soft shell and moisture-wicking), and invented a revolutionary retro-reflective thermal insulation used in custom-order garments and sleeping bags. See [www.ascendure.net](http://www.ascendure.net) for details.

### MIT CHEMICAL ENGINEERING CONSULTING PROJECTS LAB // Consultant

FEBRUARY – MAY 2010, CAMBRIDGE, MA

Designed and prototyped a low-cost hydrostatic pressure permeability testing device, and accelerated environmental exposure chamber for evaluating the degradation of waterproof tent fabrics. Developed methods for optimal fabric selection and recommendations were used for the US Army Natick Soldier Systems Center and Nemo Equipment's 2011 military and commercial tent product lines.

### LEMELSON FOUNDATION // Lemelson-MIT Fellow

DECEMBER 2009 – MAY 2010, CAMBRIDGE, MA

Conducted due diligence reviews on nominees for the \$500,000 Lemelson-MIT Prize and \$100,000 Lemelson-MIT Sustainability Award for outstanding mid-career inventors and innovators, in recognition of their contribution to industry and society. Interviewed nominees and helped direct the awards selection process. Provided insight for the Educational Outreach Program's development and re-introduction of the Invention Merit Badge for the Boy Scouts of America, and contributed to the writing of the requirements and documentation.

## RESEARCH EXPERIENCE

### MIT DEPARTMENT OF CHEMICAL ENGINEERING // Undergraduate Researcher

FEBRUARY 2008 – APRIL 2009, CAMBRIDGE, MA

Genetically engineered a metabolic pathway for n-butanol and 2-3 pentanediol production in E.coli for the use as an alternative fuel. Conducted self-directed research on the efficacy of n-alcohol adsorption by ion-exchange resins and developed a model for characterizing and optimizing alcohol adsorption by polymeric resins for *in situ* product recovery, published in *Bioresource Technology* (2010).

### HARVARD SCHOOL OF PUBLIC HEALTH // Researcher

SUMMERS 2006 AND 2007, BOSTON, MA

Investigated efficacy of UV- Germicidal Irradiation in commercial building HVAC systems (2006). Designed bespoke instrument and calibration method for detection of trace levels of vaporized hydrogen peroxide disinfectant, and methods of determining efficacy of vaporized hydrogen peroxide as a disinfectant for aircraft decontamination, saving approximately \$8,000 in instrumentation costs (2007).

## LEADERSHIP EXPERIENCE

### GORDON-MIT ENGINEERING LEADERSHIP PROGRAM FELLOW

FEBRUARY 2010 TO PRESENT

A selective leadership program within the Department of Engineering, with coursework regarding: project management, organizational management, product design and innovation and weekly leadership seminars. In the course "Engineering, Innovation and Design" was part of team that designed and prototyped a voice recognition user interface for the location-based social networking platform, Foursquare. The voice interface expanded the user base for the Foursquare beyond smartphone users and offered a natural and efficient alternative to a GUI.

### CAPTAIN, MIT MEN'S VARSITY CROSS COUNTRY TEAM

MEMBER SINCE 2007, CAPTAIN MAY 2010 TO PRESENT

Captain of MIT's nationally-ranked NCAA Division III men's cross country team, which the won NCAA New England Division III Regional Championship, for the first time in MIT's history and placed 12<sup>th</sup> at the NCAA National Championship. All-New England Honors individually.

### EAGLE SCOUT, BOY SCOUTS OF AMERICA

AUGUST 2004