

# BRIAN HACK

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<https://brianhackportfolio.wordpress.com/>

## EDUCATION

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### MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Bachelor of Science in Mechanical Engineering, GPA: 4.7 / 5.0

Cambridge, MA

June 2008

## PROFESSIONAL EXPERIENCE

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### FORTIFIED BICYCLE

Director of Engineering

Contract Mechanical Engineer

Cambridge, MA

Dec 2013 to Oct 2014

Aug to Nov 2013

- Designed Aviator/Afterburner bike light series, integrating customer needs, industrial design, and innovative functionality.
- Built mass production supply chain through communication with suppliers, manufacturers and Operations Director.
- Initiated development of new product lines for urban cycling accessories using surveys and customer feedback.

### PODIMETRICS

Contract Mechanical Engineer

Cambridge, MA

May to Aug 2013

- Designed and developed beta prototype device for clinical trials with the design goals of improving device performance, decreasing prototype cost and reducing complexity and assembly time.
- Created supply chain for device including component sourcing, custom part manufacturing and vendor coordination.

### MANTA PRODUCT DEVELOPMENT

Mechanical Engineer

Cambridge, MA

June 2008 to Mar 2013

- Managed multidisciplinary teams of industrial designers, engineers and outside vendors across all phases of the design process.
- Generated concepts for user centered design problems through brainstorming sessions and rapid sketches and 3D models.
- Built and analyzed proof of concept models, both virtual and physical, using CAD, machine shop tools and rapid prototyping.
- Designed detailed mechanical parts to be made by a variety of manufacturing processes and provided manufacturing support.

### Select Project Portfolio

- **Hair Removal Laser Handpiece:** Managed system integration among multiple engineering design teams and designed a cooling system and molded plastic housings for the handpiece with functionality and ergonomics in mind.
- **Le Laboratoire Aladdin:** Combined art and design to create a “precious item” based on previously engineered technology.
- **Assembly Line Robot:** Designed and performed structural analysis of a rolling cast aluminum base for an assembly line robot. Worked with in-house design team to create molded plastic housings for the robot.
- **More Projects Online At:** <https://brianhackportfolio.wordpress.com/project-type/mechanical-engineering/>

### Patents

- **Device for Dispensing a Medium** - US Patent 2012/0090628 A1  
Invented a novel way to dispense an inhalable, ingestible or absorbable medium in a unique form factor.
- **Visualization Instrument** - US Patent 2011/0130632 A1  
Designed the mechanical components of a novel embodiment of a video laryngoscope.

### TECHNICAL SKILLS

- Advanced Solidworks CAD techniques including master modeling, complex surfacing, DFM/DFA and FEA.
- Design experience for mass production of precision parts in molded plastic, elastomer and metals, and sheet metal.
- Model-making methods including machine shop tools, rapid prototyping processes (SLA/SLS/FDM) and precision machining.
- Effective communication of ideas and concepts through words, sketches, diagrams, and virtual and physical models.

## OTHER EXPERIENCES AND INTERESTS

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### CROSSFIT SOMERVILLE

- CrossFit Level 1 (CF-L1) Trainer and Assistant Coach at CrossFit Somerville.
- Project Manager in charge of coordinating the urban agriculture project and volunteer opportunities to empower members to be engaged in the CrossFit Somerville community.

### ENDURANCE ATHLETE

- Completed two marathons with personal best 2:57 at Philadelphia Marathon.
- Completed two Half Ironman Triathlons with personal best 5:48 at Patriot Half Ironman.

### BOYS SCOUTS OF AMERICA

- Earned Eagle Scout award in May 2003.
- Held many leadership roles including highest youth leadership position of Senior Patrol Leader.