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- EDUCATION** **Massachusetts Institute of Technology** **Cambridge, MA**
Master of Science Mechanical Engineering, February 2003
Bachelor of Science Mechanical Engineering, January 2001
- TEACHING** **Benjamin Franklin Institute of Technology** **Boston, MA**
Adjunct Professor *January 2010 to 2012*
Teaching mechanical engineering and SolidWorks to second year students in the ME Tech department.
- Massachusetts Institute of Technology** **Cambridge, MA**
Industry Mentor *October 2005 to 2012*
Provide advice and direction to 20 person teams in the senior ME design class at MIT 2.009.
- EXPERIENCE** **Portal Instruments** **Cambridge MA**
Chief Device Architect *March 2014 to Present*
Developing a novel drug delivery device with a talented team of engineers.
- Portal Instruments is developing a unique platform technology to transform the delivery of modern medicines and improve the patient experience. Our patented technology enables the precise delivery of the exact amount of drug at the desired tissue depth irrespective of drug viscosity and composition. Our delivery mechanism is painless to the patient and silent. It is also highly customizable across a large variety of medical, animal, agricultural, and cosmetic applications.
- Wyss Institute** **Cambridge MA**
Staff Mechanical Engineer *July 2012 to March 2014*
Lead engineer on a multidisciplinary team of engineers and scientist to develop a soft exosuit to aid in human locomotion. Created electro-mechanical hardware capable of the rigorous testing required for prolonged use in a dynamic environment. Contributed to the Wyss's successful second round of funding from DARPA.
- On Demand Therapeutics** **Tyngsboro MA**
Principal Mechanical Engineer *April 2011 to June 2012*
Oversaw the mechanical engineering effort to develop an innovative drug delivery implant for treatment of retinal diseases of the eye. Employing and creating cutting-edge manufacturing and assembly techniques to build sub millimeter scale complex devices constructed of glass, metal, and polymers. Developing advanced large molecule lyophilization techniques for single dose tablets.
- Cambridge Consultants Inc.** **Cambridge, MA**
Principal Mechanical Engineer *August 2005 to present*
Cambridge Consultants is a multi-disciplinary consultancy focusing on medical device and instrumentation design. Participated in various projects ranging from high volume injection molded products for drug delivery to large scale instrumentation and diagnostics. Currently developing a high volume low cost medical device which incorporates electronics and mechanical systems.
- Intelligent Automation Inc.** **Rockville, MD**
Mechanical Engineer *February 2004 to July 2005*
Lead mechanical engineer on a Phase 2 DARPA (Defense Advanced Research Projects Agency) project to develop a new semi-autonomous transport vehicle capable of omni-directional motion and obstacle negotiation. Developed innovative method using passively locking joints to walk over obstructions carrying a 5000lbs load resulting in on going patent application. Designed and built two full size transport prototypes using complex 3D computer models. Reported and presented progress to Navy project coordinators.
- Prototype Productions Inc.** **Ashburn, VA**
Mechanical Engineer *November 2003 to January 2004*
Consulted with a medical device company to develop a haptic simulator used to train doctors to perform endoscopic medical procedures. Used state-of-the-art 3D manufacturing techniques to add lifelike sight and touch sensations to the user experience and added a suite of sensors for greater simulation feedback. Created multiple prototypes under tight client deadlines.
- BCMR Inc.** **Boston, MA**
Co-Founder & Chief Design Engineer *October 2000 to November 2003*

Founded a 4-person engineering consulting company specializing medical grade commutators for the bioscience industry.

Bio-Instrumentation Laboratory at MIT

Cambridge, MA

Graduate Research Assistant

September 2001 to January 2003

Needleless Injection Device: Developed a hand-held needle free injection device for drug delivery as an independent design project for graduate thesis. Designed a proof of concept prototype as well as a device to obtain accurate measurements of system performance. Patent pending for use of shape memory alloy as an actuator.

Undergraduate Research Assistant

June 2000 to August 2001

Nano-Walker Project: Led mechanical engineering effort of 6-person team with \$1 million budget to develop the design of the smallest fully autonomous miniature robot operating at the sub-atomic scale. Designed frame structure and flexible circuit geometry to make the robot smaller than a 30 mm cube.

Micro Needle Array: Collaborated with doctors and engineers to design a micro-needle array that measures brain activity at the neuron level. Made array prototype using wire EDM to determine feasibility of design (Patent No. 7,212,851)

PATENTS

Microtablets for Drug Delivery (Patent No. 8,597,680), System for Making Microtablets for Drug Delivery (Patent No. 8,317,507), Reconstitution Device (Patent No. WO 2,007,140,238), Micro-structured Arrays for Cortex Interaction and Related Methods of Manufacture and Use (Patent No. 7,212,851, Reconstitution Device (Patent No. WO2007140238), Needle-less Drug Injection Device (Application No. 0050.2048-000).