

GRANT A. ELLIOTT, PhD

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Portfolio: www.grantaelliott.com

Education

Massachusetts Institute of Technology, Cambridge, MA

- **PhD Electrical Engineering and Computer Science (Biomedical Sciences and Engineering Area)**, 2012. GPA: 5.0/5.0
"Design and Evaluation of a Quasi-passive Robotic Knee Brace: On the Effects of Parallel Elasticity on Running"
Research performed under Prof. Hugh Herr. Coursework concentration in Techniques of Biomedicine.
- **MEng Electrical Engineering and Computer Science**, 2007. GPA: 5.0/5.0
"Field Instrumentation for Vocalizing Avian Survey"
- **SB Electrical Engineering and Computer Science**, 2006. GPA: 5.0/5.0
"Development of an Autonomous Quadrotor Flying Platform"
- **SB Physics**, 2006. GPA: 5.0/5.0
"Ultraviolet Laser Calibration of Drift Chambers"

Key Skills

Development

- C# (PC)
- C (Embedded, Atmel AVR)
- Verilog (Actel FPGA)

Tool Proficiency

- SolidWorks
- Eagle
- MATLAB
- LaTeX

Design for Manufacture

- CNC Machining
- PCB Fabrication/ Assembly

Fabrication

- Manual/CNC Machining
- Laser/Water Jet Cutting
- Manual PCB Assembly

Employment

Unboxed Systems, LLC, Wellington, FL - 2012-Present

Owner and Consultant

- Offered mechatronic design services and expertise in human biomechanics.

Bad Penny Studios, LLC, Wellington, FL - 2012-Present

Owner and Software Developer

- Developed and marketed real-time interactive web applications using the Meteor framework.

MIT Biomechanics Group, Cambridge, MA - 2007-2012

Graduate Researcher

- Led electrical and mechanical design and manufacture of several generations of robotic prostheses and exoskeletons intended to restore or augment running ability.
- Using SolidWorks, designed and simulated a custom high torque, low mass clutch with integrated planetary transmission.
- Performed clinical trials using motion capture system, instrumented treadmill, electromyography sensors, and mobile cardiopulmonary exercise test system.
- Using EAGLE, AVRGCC, and MATLAB, designed and maintained digital, analog, and power electronics for 6 wearable robotics projects, as well as user-friendly embedded software framework and debugger to ease development.
- Managed and mentored three undergraduates for one year or more.
- Served as liaison to executives from industrial partners.
- Authored a patent, several journal articles, and presented at Dynamic Walking conference.

MIT Ecology Media Group, Cambridge, MA - 2006-2007

Graduate Researcher

- Implemented field-deployable recording stations for distributed acoustic survey of owls in Maine.
- Designed mixed signal electronics and firmware for audio capture and atmospheric condition sensing.
- Developed computationally inexpensive localization algorithm based on time delay of arrival with sub-sample resolution.

MIT Electromagnetic Interactions Group, Cambridge, MA - 2003-2006

Undergraduate Researcher

- Designed calibration and readout systems for charged particle detector.
- Refined chamber housing, gas seals, and ultraviolet windows and instrumented using CAMAC components.
- Developed software for chamber readout and calibration and laser characterization in MATLAB and LabView.

Consulting

New York Hall of Science, New York City, NY - 2011

Rehabilitative Technologies Consultant

- Provided expert feedback during design of upcoming traveling exhibit on future of human rehabilitation and augmentation.

Boston Museum of Science, Boston, MA - 2011

Biomechanics Consultant

- Collaborated with educators to develop biomechanics module for local middle school curriculum.

Personal Projects

"Eternal Footman" Natural Language Processing For Cryptanalysis - 2007-Present

Software Developer

- Developed search algorithms and heuristics based on natural language processing to accelerate code-cracking during the MIT Mystery Hunt team competition.
- Implemented API in C#, allowing other team members to contribute search tools leveraging analysis infrastructure.

"Digital Lighting System" Computer Controlled Lighting - 2005-2010

Design Engineer

- As part of team of four, engineered two generations of high resolution computer controlled LED dance floors.
- Designed electronics, implemented communication with FPGAs in Verilog, and designed injection molded housings.
- Developed vector-based interactive lighting control software in C#.
- Marketed system to clubs, charity fundraisers, and hobbyists.