

DAVID A. B. HILL

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EDUCATION

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Cambridge, Massachusetts

Doctor of Philosophy in Media Arts and Sciences, June 2018

Honors: Hugh Hampton Young Fellow

Relevant Coursework: Biomechanics & Neural Control of Movement, Optimization Methods, Analysis & Design of Feedback Control Systems, The Analytics Edge

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Cambridge, Massachusetts

Master of Science in Media Arts and Sciences, June 2012

Honors: NSF Graduate Research Fellow

MOREHOUSE COLLEGE

Atlanta, Georgia

Bachelor of Science in Physics, Minor in Mathematics, May 2010

Honors: Phi Beta Kappa, Mellon Mays Undergraduate Fellow, ARCS Scholar (Top 8 students in Division of Science & Mathematics – Excellence in Research and Academics), Physics Top Scholar (Highest Physics GPA)

PROFESSIONAL EXPERIENCE

Senior Research Scientist –

Sept. 2018 – Present

Performance Science, Los Angeles Dodgers, Phoenix, Arizona

- Analyze movement patterns of baseball athletes and develop technology to better understand and enhance elite performance
- Collaborate with various departments across baseball operations to aid in player development

Research Assistant –

Sept. 2010 – May 2018

Biomechatronics Group, MIT Media Lab, Cambridge, Massachusetts

- Develop neuromuscular model of human gait based on biplanar fluoroscopy walking trials
- Oversee walking and running experiments that analyze gait biomechanics of both amputees and non-amputees using Motion Capture, Pressure Sensing, Electromyography, XROMM/Biplanar Fluoroscopy, CT, and several other sensing agents
- **Supervise multiple undergraduate researchers**
- Demo to lab sponsors during sponsor meetings held every semester and spontaneous lab visits throughout the year

Lead iOS Developer (Pickup Stats: Basketball Stat Tracker App) –

Feb. 2015 – Jan. 2019

AppMuumba, Cambridge, Massachusetts

- Develop iOS app for tracking personal basketball stats for recreational athletes
- Create advanced statistics & analytics for recreational basketball players

i-Trek Fundraising Committee Member & Volunteer –

Oct. 2013 – Present

i-Trek Inc, Cambridge, Massachusetts

- Seek and apply to grant opportunities for the Massachusetts non-profit, i-Trek Inc.
- Funds obtained have contributed to research opportunities for undergraduate students and outreach initiatives for grade school students

Grad Catalyst Graduate Community Fellow & Crew Member –

Nov. 2010 – June 2014

MIT Office of the Dean for Graduate Education, Cambridge, Massachusetts

- Coordinated clinics at undergraduate institutions to inform students about graduate school and the application process
 - Participated in panel discussions for prospective graduate students and travel to conferences to lead recruitment efforts
 - Part of team responsible for development of the Grad Catalyst Website
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SKILLS

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| Motion Analysis | • Motion Capture (Vicon, MotionMonitor, Qualisys), Biomechanical Analysis & Modeling (SIMM, Opensim, Visual3D), X-ray Reconstructive of Moving Morphology (XROMM) / Biplanar Fluoroscopy, Force Plates (AMTI, Bertec), COSMED Metabolic Module, Delsys Trigno EMG System, Tekscan Pressure Mapping System, TELEMED Ultrasound System |
| Programming | • MATLAB/Simulink (Proficient), iOS/Objective-C (Proficient) |
| Computer Engineering | • Experience with Python, R, SQL, Git |
| Computer Engineering | • Microsoft Excel (Proficient), Adobe Creative Suite |
| Computer Engineering | • Solidworks (Intermediate), Autodesk Software |
| Computer Engineering | • Experience with Basic Machining, Digital Fabrication, EAGLE, & Arduino |
| Certifications | • NASM Certified Personal Trainer, NASM Performance Enhancement Specialist |

LEADERSHIP, SERVICE & EXTRACURRICULAR ACTIVITIES

Introduction to iOS Programming Instructor – Feb. 2015 – May 2015
Codman Academy Charter School, Boston, Massachusetts

- Taught Introduction to iOS Programming course to local high school students

Developing World Prosthetics Course Instructor – Spring 2014 & Fall 2015
MIT D-Lab, Cambridge, Massachusetts

- Co-Taught MIT D-Lab course focused on the development of prosthetic solutions for developing nations
- Coordinated collaboration between the class and Autodesk
- Mentored student team on class prosthetics project

Sloan Sports Analytics Conference Organizing Team (Research Papers & People Operations) – Oct. 2012 – March 2018
MIT Sloan Entertainment, Media, and Sports (EMS) Club, Cambridge, Massachusetts

- Oversee job board & coordinate with companies and conference attendees to spread job opportunities
- Review and select research papers to be presented at the conference

MIT Media Lab Diversity Committee Member – Oct. 2010 – June 2018
MIT Media Lab, Cambridge, Massachusetts

- Plan events in the MIT Media Lab that promote diversity and inclusion
- Former co-director of Media Lab Diversity Speaker Series

MIT Intramural Team Captain & Athlete – Oct. 2010 – Jan. 2018
MIT Intramural Sports, Cambridge, Massachusetts

- Captain of IM basketball team and active member of several other intramural teams

Academic Partner (Unpaid Management Consultant) – Oct. 2011 – Feb. 2012
Beacon Value Partners, Cambridge, Massachusetts

- BVP works with start-up companies during the development stage to aid in idea development, management, and marketing
- Developed ROI model for MBA Fellowship to upstart online college

Learn2Teach Teach2Learn Mentor – Oct. 2010 – Aug. 2011
South End Technology Center, Boston, Massachusetts

- Assist Boston area middle and high school students in group engineering projects highlighting new technologies and unorthodox uses of common materials

Teaching Assistant & Peer Lead Team Learning Instructor – August 2008 – July 2010
Morehouse College, Atlanta, Georgia

- Lead class problem sessions and assisted professor in constructing assignments during two semesters of an Introduction to MATLAB course (TA)
- Assembled, oversaw, and taught lab and recitation sessions for a summer Optics course (TA)
- Lead small group problem sessions for Calculus students that encouraged peer-to-peer teaching and learning (PLTL)

RESEARCH HIGHLIGHTS

Presentations (Most Notable) –

- Autodesk University – Oral – Las Vegas – Dec. 2014
- NSF Engineering Research Center Annual Meeting – Oral – Washington DC – Dec. 2011

Conference Papers & Abstracts (Most Notable) –

- “Effects of a powered ankle-foot prosthesis on kinetic loading of the contralateral limb: A case series.” D. Hill and H. Herr. 2013 IEEE International Conference on Rehabilitation Robotics (ICORR), Seattle, June 24-26 2013.
- “Manufacturing and Characterization of Nano-Composite Linear Strain Sensors.” B. Simpson, D. Hill, and K. Kalaitzidou. ANTEC Conference 2010, Orlando, May 16-20 2010.
- “Interferometric Lithography with a Desk-top Size Soft X-ray Laser.” P.W. Wachulak, M.C. Marconi, W. Rockward, D. Hill, E.H. Anderson, C.S. Menoni, J.J. Rocca. 11th International Conference on X-Ray Lasers, Belfast, August 18-22 2008.

Journal Publications (Most Notable) –

- “Athletic Assistive Technology for Persons with Physical Conditions Affecting Mobility.” D. Hill, D. M. Scarborough, E. Berkson, & H. Herr. JPO: Journal of Prosthetics and Orthotics, 26, 3, (2014).
- “Desk-top EUV Interferometric Lithography Tool Based on an Amplitude Division Interferometer.” P. Wachulak, M. Grisham, D. Martz, S. Heinbuch, W. Rockward, D. Hill, J. Rocca, C.S. Menoni, E. Anderson, M.C. Marconi. Virtual Journal for Biomedical Optics, 3, 8, (2008).