Jordan B. Harrod

201D Alice Cook House, Ithaca, NY 14853 | jbh282@cornell.edu | 201.508.7380
github.com/harrodjordan | linkedin.com/in/harrodjordan

EDUCATION

Harvard-MIT Health Sciences and Technology **Cambridge, MA**
Incoming Ph.D. Student in Medical Engineering and Medical Physics *May 2024 (expected)*
Concentration in EECS

GEM Associate Fellow
Sigma Xi Associate Member

Cornell University, College of Engineering **Ithaca, NY**
B.S. in Biomedical Engineering *May 2018 (expected)*
Concentration in Bioinstrumentation and Imaging

Major GPA: 3.27/4.0
GRE: 169 Q, 163 V
Dean's List: Spring 2015, Fall 2017, Merit List (>3.0): Fall 2014, 2015, 2016, Spring 2016, 17

ACADEMIC RESEARCH AND INDUSTRY EXPERIENCE

Undergraduate Research Assistant, Laboratories of Dr. Lawrence Bonassar and Dr. Lara Estroff, Meinig School of Biomedical Engineering/Department of Materials Science and Engineering
Cornell University, Ithaca, NY
May 2015 – Present
I aim to characterize and replicate the meniscal entheses, which attach the meniscal body to bone.
- Created meniscal enthesis constructs using trabecular bone cores containing mineralization gradients and tested tensile strength of constructs to determine the ideal demineralization profile for enthesis.
- Created custom MATLAB scripts to analyze the demineralization profile of partially demineralized trabecular bone cores.
- Established a standardized demineralization procedure for trabecular bone cores to further improve the mechanical properties of meniscal enthesis constructs.
- Analyzed microCT scans of demineralized bone experimental samples qualitatively by creating 3D renderings in Avizo Fire.
- Implemented histological techniques to compare protein localization and collagen fiber alignment in meniscal enthesis constructs to the native enthesis.

Amgen Scholar, Laboratory of Dr. Lei Xing, Department of Radiation Oncology
Stanford University, Stanford, CA
June 2017–August 2017
I aim to develop a neural network that will identify artifacts in real-time MRI imaging.
- Developed a recurrent convolutional neural network to automate artifact identification in real-time MRI.
- Developed a deep convolutional neural network that automates aliasing artifact identification on MRI images.
- Developed Python algorithm to introduce aliasing motion artifacts in complex-valued MRI images.

Biomarker Development Intern
Clinical and Translational Imaging Group, Novartis Institute for Biomedical Research
East Hanover, NJ
Summer 2016
At Novartis, I aimed to more efficiently process Proof-of-Concept data for several pre-clinical drug trials using MATLAB, Spotfire, and Microsoft Office to prove their efficacy.
- Generated Proof-of-Concept data for several concurrent preclinical studies for transition to the next stage in FDA approval.
- Analyzed optical coherence tomography images of intra-retinal fluids to determine drug efficacy on reduction of fluid volumes in a clinical trial.

Jordan B. Harrod

201D Alice Cook House, Ithaca, NY 14853 | jbh282@cornell.edu | 201.508.7380
github.com/harrodjordan | linkedin.com/in/harrodjordan

- Validated novel software that aimed to better visualize intra-retinal fluids using three-dimensional reconstructions and user-delineated fluid selections.
- Evaluated clinical trial data to determine systemic and local effects of a new topical analgesic treatment using Spotfire and Microsoft Excel visualization and data analysis techniques.

Research Assistant
Biomaterials and Interface Tissue Engineering Lab, Department of Biomedical Engineering
Columbia University, New York City, NY
Summer 2014
At Columbia, I aimed to determine whether nanofiber polymer scaffolds intended for use in drug delivery could withstand the mechanical stresses experienced by the periodontal ligament.

- Mapped tensile properties of nanofiber scaffolds to validate them as a replacement for native periodontal ligamentous tissue.
- Electrospun polymer nanofiber scaffolds of different chemical compositions.
- Performed fluorescence assays on cell-seeded scaffolds to determine DNA content and cell viability.
- Performed mechanical testing to determine failure energies of polymer scaffolds and interpreted results using MATLAB and Microsoft Excel.

PUBLICATIONS

Jordan Harrod, Morteza Mardani, John Pauly, Lei Xing. "Deep Predictive Coding For Super Time-Resolved MR Imaging" (Abstract) Neural Information Processing Systems, 2017, December 9th, 2017

Jordan Harrod, Morteza Mardani, Lei Xing. "Automated Artifact Identification in MR Images Using Deep Convolutional Networks" (Abstract) BMES Annual Meeting, 2017, October 11th, 2017

Guillaume Normand, Eric H Souied, Bruno Lay, Ronan Danno, Rocio Blanco-Garavito, Perrinne Charrard, **Jordan Harrod**, Michael Maker, Sudeep Chandra, Georges Weissgerber. "Validation of 3D volumetry for a novel anti-angiogenic therapy of neovascular age-related macular degeneration" (Abstract), ARVO Annual Meeting 2017, May 8, 2017

PRESENTATIONS

Jordan Harrod, Morteza Mordani, Lei Xing. "Motion Artifact Detection for Real-Time MR Imaging" Stanford Summer Research Program Symposium. August 23, 2017

Team TransFur (**Jordan Harrod**, Elizabeth Feeney, Morgan Feldman, Priya Balasubramanian) "TransFur – Top 10 Finalist Presentation" Animal Health Hackathon, January 29th, 2017

PROJECTS

BME Senior Design (BME 4080/4090)
Cornell University Meinig School of Biomedical Engineering
Minimal Contact Rodent Vitals Monitoring System
Ithaca, NY
August 2017-Present

- Working to develop a minimal contact vitals monitoring system for rodents in academic research facilities

Jordan B. Harrod

201D Alice Cook House, Ithaca, NY 14853 | jbh282@cornell.edu | 201.508.7380
github.com/harrodjordan | linkedin.com/in/harrodjordan

Integrated Sensors and Actuators (ECE 4320)
Cornell University Department of Electrical and Computer Engineering
Motion-Based Security Key in iOS
Ithaca, NY
May 2017

- Developed an iOS app that utilizes the gyroscopic sensors present in iPhones to record motion data
- Designed a program that can compare motion data to check for similarity (compare password input to password on file) and unlock phone if data is similar enough

Animal Health Hackathon
Cornell University College of Veterinary Medicine, Entrepreneurship at Cornell
Team TransFur
Ithaca, NY
January 2017

- Designed a 3D printed manual assistance device for topical application of flea and tick medication in 24 hours
- Chosen as Top 10 Finalist out of 50 teams to present device to potential investors and industry representatives

SKILLS

Technical: Java. MATLAB. Swift. C. MIPS Assembly. iOS App Development. MEMS Microfluidic Device Fabrication. Polymer Electrospinning. X-Ray Image Processing. microCT Image Processing. Microsoft Office Suite. Statistical Analysis. Biomaterial Fabrication. Mechanical Testing. Histology. Cell Viability Analysis. Sterile Cell Culture Techniques. Experimental Design. Spotfire. FLIR Research IR. Avizo Fire.
Languages: English (native), French (conversational fluency)

ACADEMIC TEACHING EXPERIENCE

Undergraduate Teaching Assistant **Ithaca, NY**
BME 3310: Medical and Preclinical Imaging *January 2018-Present*
Meinig School of Biomedical Engineering, Cornell University

- Advised students on imaging modalities and image analysis, and held office hours.

Undergraduate Teaching Assistant **Ithaca, NY**
BME 3030: Measurement and Instrumentation in Biomedical Engineering *August–December 2017*
Meinig School of Biomedical Engineering, Cornell University

- Designed and taught a lecture on advanced biomedical data manipulation.
- Advised students on circuit design and experimental design during an instrumentation lab and held office hours.

Chemistry Tutor **Ithaca, NY**
CHEM 1007: Academic Support for CHEM 2070 *August 2017 - Present*
Department of Chemistry, Cornell University

- Tutored underclassmen in introductory chemistry

LEADERSHIP AND ACADEMIC OUTREACH EXPERIENCE

Engineering Dean's Undergraduate Advisory Council **Ithaca, NY**
Council Member *April 2017–Present*

- Advised the Dean of the College of Engineering on future academic and student life improvements.

Jordan B. Harrod

201D Alice Cook House, Ithaca, NY 14853 | jbh282@cornell.edu | 201.508.7380
github.com/harrodjordan | linkedin.com/in/harrodjordan

Biomedical Engineering Society, Undergraduate Chapter at Cornell **Ithaca, NY**
Co-Founder and Co-President *May 2016–Present*
As a member of the first class of Biomedical Engineering to graduate from Cornell, I felt that it was necessary to create an organization that represented the ideals and interests of my peers, and that gave us opportunities to improve ourselves through professional development and tutoring.
- Established the undergraduate chapter of the Biomedical Engineering Society in May 2016.
- Created a program that allows students to go into the Ithaca community to present their research, which will launch fall 2017.
- Handpicked 10 other students to form an executive board, advertised the organization, and managed many successful academic and social events for those interested in biomedical engineering.

Louis Stokes Alliance for Minority Participation (LSAMP) Scholars Program **Ithaca, NY**
Scholar *August 2015–Present*
- Attended regional LSAMP conferences to present research and network with other LSAMP scholars.

Engineering Ambassadors **Ithaca, NY**
Co-President (*current*), Co-Vice President (*2016-17*) *March 2015–Present*
- Gave group tours of the engineering quad, participated in panels for the College of Engineering, had lunch with prospective students, corresponded with prospective and admitted students by email and phone throughout the application process, and occasionally gave one-on-one tours of the engineering quad or of the Bonassar Lab.
- Arranged social events for the ambassadors, worked closely with admissions staff, and lead the application and interview process for prospective new ambassadors.
- Collaborated with Diversity Programs in Engineering to increase interest in STEM fields in underrepresented minorities and women.

Splash! At Cornell **Ithaca, NY**
Course Instructor *February 2015–Present*
- Designed a lesson plan for and taught a course on current research in biomedical engineering every semester for the past three years.

Alpha Phi Omega, Gamma Chapter **Ithaca, NY**
Brother, Fellowship Co-Chair, Service Chair *September 2015–Present*
- Supervised and led service events, such as volunteering at the Ithaca Science Olympiad.
- Planned and organized fun and relaxing events for APO brothers, such as weekly Zumba classes.

Recreational Fencing Club **Ithaca, NY**
President (*current*), Secretary (*2015-16*) *September 2014–Present*
- Taught new members the basics of fencing.
- Managed a multi-thousand dollar budget and membership dues.
- Planned travel to and participation in competitive events for interested members and arranged skill development workshops and clinics with nearby universities.

Alice Cook House, West Campus House System **Ithaca, NY**
Student Assistant *August 2016–May 2017*
- Acted as an academic, emotional, and mental health wellness resource for 80 residents.
- Planned social and academic events, such as a “Learn to Code” workshop series and a weekly athletic event for interested residents.

Jordan B. Harrod

201D Alice Cook House, Ithaca, NY 14853 | jbh282@cornell.edu | 201.508.7380
github.com/harrodjordan | linkedin.com/in/harrodjordan

HONORS AND AWARDS

National Action Council for Minorities in Engineering (NACME) Scholarship *May 2017*
National Action Council for Minorities in Engineering, Cornell University Diversity Programs in Engineering

Undergraduate Excellence in Service Award *May 2017*
Cornell University Diversity Programs in Engineering

Animal Health Hackathon, 9th Place (Team TransFur) *January 2017*
Entrepreneurship at Cornell, Cornell University College of Veterinary Medicine

National Residence Hall Honorary Student of the Year *May 2016*
National Residence Hall Honorary, Cornell University Chapter

National Residence Hall Honorary Student of the Month *September 2015*
National Residence Hall Honorary, Cornell University Chapter