**Jonathan Z. Egan**

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**Objective**

To be an entrepreneurial-minded engineer contributing to the improvement of healthcare through technology development, particularly in the area of medical devices; in the long-term, to focus on improving access to medical technologies in the developing world.

**Education**

**Boston University, College of Engineering (Boston, MA)**

Master of Engineering in Biomedical Engineering, GPA: 3.7 **Spring 2015**

Bachelor of Science in Biomedical Engineering, *cum laude*, GPA: 3.5 **Spring 2014**

**Experience**

**Center for Advanced Orthopaedic Studies September 2015-present**

***Beth Israel Deaconess Medical Center, Harvard Medical School***

Biomedical Engineer

* Currently advising a group of engineering students from Boston University for their senior capstone project
* Designed and built an electromechanical apparatus for simulating physiologic movements of cadaveric wrists via muscle manipulation
* Implemented modification to dynamic shoulder loading apparatus to accommodate active motion control for the evaluation of a novel humeral head prostheses
* Tested an implantable device in human cadaveric femurs designed to prevent hip fragility fractures

**Optical Characterization and Nanophotonics Laboratory September 2013-October 2014**

***Boston University College of Engineering***

Research Assistant

* Developed an assay for use as a multiplexed, isothermal, label-free molecular diagnostic technique utilizing rolling circle amplification (RCA) and interferometric reflectance imaging sensor (IRIS)
* Designed and performed experiments to quantitatively characterize the detection assay; presented results to advisor and team at weekly meetings

**Tufts Center for the Study of Drug Development August 2013**

***Tufts University***

Intern/Consultant

* Developed a tool using VBA macros for MS-Excel to extract survey data for a project examining the social media usage of pharmaceutical companies
* Performed searches of clinical trial databases, extracting information to be used in a study of long-term development of adaptive clinical trials

**VA Medical Center (Jamaica Plain/West Roxbury, MA) July-August 2012**

***US Department of Veterans Affairs***

Systems Redesign Analyst

* Collected, organized, and analyzed patient data as part of a multidisciplinary team participating in nationwide specialty clinic collaborative to improve efficiency of Orthopedics clinic
* Designed hospital floor maps for Jamaica Plain campus

**Continuing Professional Development**

**Medical Device Development Course December 1-2, 2016**

*Harvard Catalyst*

***2.008x* Introduction to Manufacturing Processes November 2016-present**

*MITx*

**Noteworthy Projects**

**Biomedical Device Design & Development September 2014-August 2015**

* As a group leader, coordinated with clinicians and delegated duties amongst the group members
* Observed procedures in the Electrophysiology (EP) Lab at Boston Medical Center, identified a clinical need for better ablation depth monitoring in EP Lab, and developed a technology-based solution
* Major contributions to a novel medical device include: device design, prototype construction, device history record documentation, prior art search, and regulatory planning

**Medical Device Regulatory Process September-December 2013**

* Wrote report simulating the documentation required for bringing a prosthetic heart valve to market
* Intensive research done on the FDA standards that regulate Class III medical devices and the research & documentation required for FDA approval

**Submitted Manuscripts**

Tyler Gonzalez, **Jonathan Egan**, Micah Blais, Mohammed Ghorbanhoseini, Aron Lechtig, Brian Velasco, Ara Nazarian, John Y. Kwon. *Overtightening of the Syndesmosis Revisited and the Effect of Syndesmotic Malreduction on Ankle Dorsiflexion*. Foot & Ankle International (*pending*)

**Conference Participation**

**Orthopaedic Research Society Annual Meeting March 19-22, 2017**

***Poster Presenter***

* Amin Mohamadi, **Jonathan Egan**, Magdalena Nevett, Kenneth Ierardi, Stephen Okajima, Mark S. Vrahas, Edward K. Rodriguez, Ara Nazarian, Michael J. Weaver. *The Effect of Various Lateral Locking Plate Configurations on the Fixation Stiffness in Osteoporotic Femoral Sawbones.*

***Author***

* **Jonathan Egan**, Amir Reza Kachooei, Kevork Hamparian, Patrick Williamson, Ara Nazarian. *Bilateral Arm-Abduction Shoulder Radiography to Determine the Involvement of the Scapulothoracic Motion in Frozen Shoulder.*
* Mohammad Ghorbanhoseini, Tanishq Suryavanshi, Daniel Copeland, Patrick Williamson, **Jonathan Egan***,* Poopak Hafezi, Hamidreza Yazdi, Ara Nazarian. *Does Triple Semitendinosus Autograft Tendon Have the Same Thickness as Quadrupled Semitendinosus and Gracilis Autograft Tendons in ACL Reconstruction?*

**Technical and Professional Skill**

**Computer Skills:** MATLAB, image processing, MS-Excel (VBA/macros), ImageJ, and Verilog.

**Lab Skills:** Motion capture, Tekscan pressure sensing, biomechanical testing, biological signal (e.g. EMG, EOG, ECG) collection and analysis, Instron testing, DNA amplification, molecular cloning

**Hobbies & Interests**

* Basketball
* Cooking
* Gardening
* Hiking
* Camping