

CONOR MESSER

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EDUCATION

Bachelor of Science in Bioengineering, *summa cum laude* May 2019
Northeastern University Boston, MA
Minors: Computer Science and Vocal Performance

FELLOWSHIPS

Fulbright Fellowship 2019 – 2020
Awarded by U.S. Department of State to perform research and promote cultural exchange Abu Dhabi, UAE

National Science Foundation Research Experience for Undergraduates Summer 2015
REU award to perform research at University of Colorado Boulder, CO

PUBLICATIONS

Renda F, **Messer C**, Rucker C, & Boyer F (2021). A Sliding-rod Variable-strain Model for Concentric Tube Robots. *IEEE Robotics and Automation Letters*, 6(2), 3451-3458.

Al falahi H, Renda F, **Messer C**, & Stefanini C (2021). Taming the Instability of Concentric Tube Robots for Distal Force Control in Minimally Invasive Cardiac Ablation. *Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science*, 235(23), 7212-7232.

Zareian R, Susilo M, Paten J, McLean J, Hollmann J, Karamichos D, **Messer C**, Tambe D, Saeidi N, Zieske J, & Ruberti J (2016). Human Corneal Fibroblast Pattern Evolution and Matrix Synthesis on Mechanically Biased Substrates. *Tissue engineering. Part A*, 22(19-20), 1204–1217.

RESEARCH EXPERIENCE

Associate Computational Biologist I Sep 2020 – Present
Broad Institute of MIT and Harvard Cambridge, MA

- Analyze genomic and proteomic data for multiple cancer drug resistance projects using established pipelines
- Develop and maintain state-of-the-art computational tools for identifying genomic copy number alterations and recurrent mutations

Fulbright Scholar August 2019 – June 2020
Khalifa University of Science and Technology Abu Dhabi, United Arab Emirates

- Developed optimization and path planning algorithm in Python for the design of concentric tube surgical robot
- Integrated multiple libraries (collision-detection, dynamic KD-tree, optimization) with novel sampling-based planner and kinematic model to explore design possibilities

Visiting Research Intern – REU June 2015 – August 2015
Biomaterials and Functional Tissue Engineering Lab, University of Colorado Boulder, CO

- Characterized electrospun hydrogels for tissue scaffolding with guidance from a post-doctoral mentor
- Developed multi-variable study to investigate factors contributing to fiber size and density

Research Assistant January 2015 – June 2015
Extracellular Matrix Engineering Research Lab, Northeastern University Boston, MA

- Compared growth and alignment of 200 image pairs of corneal cells to discover effects of stress on growth
- Analyzed data in MATLAB to give lab decisive results and visualizations for publication in *Tissue Engineering*

PROFESSIONAL EXPERIENCE

- Research Engineer Co-op** July 2018 – December 2018
Liberating Technologies Inc. Boston, MA
- Designed and tested prototype orthotic device using 3D printing, thermoform plastics, textiles, and hardware
 - Wrote MATLAB algorithms to process and analyze gait data for balance characterization of prosthetic feet
- Hardware Engineer** January 2018 – June 2018
Robotics and Intelligent Vehicles Research Lab, Northeastern University Boston, MA
- Developed intuitive control of a prosthetic hand through high-level human intent and ambient intelligence
 - Built Arduino prototype circuit and produced data for existing motion tracking algorithm in ROS architecture
- Biomechanical Engineering Co-op** July 2016 – December 2016
Stryker Trauma GmbH Kiel, Germany
- Designed test setups using bone models in PTC Creo Parametric and constructed the test setups in the lab
 - Ran mechanical fatigue tests of intramedullary nails using custom test setups and ran statistics on results

HONORS AND AWARDS

- Distinguished Bioengineering Scholar Award** Spring 2019
Northeastern University award for top three Bioengineering students
- Sears B. Condit Award** Spring 2019
Top 100 GPA of graduating seniors at Northeastern University
- Huntington 100** Spring 2018
Top 100 undergraduate and graduate students at Northeastern University
- Presidential Global Scholars Program** Fall 2016
Merit based scholarship supporting global co-op experience
- Northeastern University Scholar** Fall 2014
Merit based scholarship program, awarded to ~3% of incoming class

PRESENTATIONS

- Developing Non-Constant Curvature Concentric Tube Robots For Use in MIS** February 2020
Middle East and North Africa Fulbright Enrichment Seminar
- Hand Exoskeleton to Study Motor Control in Reach to Grasp Motions** April 2020
Northeastern Bioengineering Capstone Presentation
- Preparation and Characterization of Electrospun Photoclickable Thiol-ene Hydrogels** August 2015
University of Colorado REU Conference

TEACHING EXPERIENCE

- ACT/SAT Test Prep Teacher** August 2017 – March 2019
Kaplan Test Prep Boston, MA
- Bioengineering Tutor** January 2016 – April 2018
Northeastern University Boston, MA