ELIZABETH "BIBIT" BIANCHINI

Roboticist +
Mechanical Engineer
bibit@seas.upenn.edu
www.bianchini-love.com/bibit

Education

University of Pennsylvania (PhD in Mechanical Engineering), Philadelphia, PA 2020-Present
Stanford University (MS in Mechanical Engineering), Stanford, CA 2018-2020
Massachusetts Institute of Technology (BS in Mechanical Engineering), Cambridge, MA 2014-2018

Experience

Penn DAIR Lab + Kod*Lab Robotics Labs, Philadelphia, PA June 2020 - Present

I am a PhD student interested in what it takes to get robots out of labs and into the world. Specifically, I am currently working on how to build dynamics models of novel objects as quickly as possible, so that we can utilize mature model predictive control techniques for robotic manipulation in the wild.

Stanford Salisbury Robotics Lab, Stanford, CA 2019 - 2021
Researcher + Consultant
- Classified force data readings from robotic arm to interpret human touch gestures

Rhino Tools and Equipment, Cambridge, MA 2017 - Present
Co-Inventor
- Patented a masonry product, won 1st place at the 2018 Collegiate Inventors Competition

Intuitive Surgical, Sunnyvale, CA June-Sept. 2019
Mechanical Engineering Intern
- Designed an injection-molded subassembly for Ion, a lung biopsy robot
- Designed, fabricated, and validated an electromechanical test fixture for a system part

Stanford Charm Lab, Stanford, CA March -June 2019
Researcher
- Implemented the hardware and software for a haptic bracelet for use in virtual reality

Uber Advanced Technologies Group, Pittsburgh, PA June-Sept. 2017
Hardware Engineering Intern
- Compared 4 simulation methods against real-world data to guide sim. tool development
- Planned and executed testing to stress specific autonomous features on a test track

Fitbit, San Francisco, CA June-Aug. 2016
Mechanical Engineering Intern
- Contributed to the mechanical feature set and design of a future product
- Ran a cross-disciplinary project to balance electro-mechanics with user considerations
- Oversaw the pilot build of an injection-molded part at a factory in Shenzhen, China

Carnegie Robotics, Pittsburgh, PA June-Aug. 2014 + 2015
Mechanical Engineering Intern
- Generated 3D point cloud maps of city infrastructure for a confidential project
- Wrote data collection and analysis programs to quantify lidar scanner performance

New Valence Robotics, Boston, MA Jan. 2015
Design Intern
- Worked for a startup providing schools with 3D printers and Common Core lesson plans
- Headed a team of interns to generate lesson plans, CAD models, and documentation

MIT Stress Line Additive Manufacturing Project, Cambridge, MA Sept.-Dec. 2014
Undergraduate Researcher
- Implemented non-planar additive manufacturing method using a six-axis robotic arm
- Discovered a robust way to deposit material in response to 3D flow of forces in beams

Publications

Bianchini, Bibit, Mathew Halm, Nikolai Matni, and Michael Posa. ***Generalization Bounded Implicit Learning of Nearly Discontinuous Functions.*** 4th Annual Learning for Dynamics and Control Conference (L4DC) , 2022.

Bianchini, Bibit, Prateek Verma, and J. Kenneth Salisbury. ***Towards Human Haptic Gesture Interpretation for Robotic Systems.*** In 2021 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), pp. 7334-7341. IEEE, 2020.

Awards and Honors

National Defense Science and Engineering Graduate (NDSEG) Fellow 2020-Present
National Science Foundation (NSF) Graduate Research (GRFP) Fellow (declined) 2020
Ford Foundation Predoctoral Scholar (declined) 2020
Threshold Ventures Fellow (formerly known as DFJ Fellowship) 2019
Collegiate Inventors Competition, National Undergraduate 1st Place Winner 2018

Technical Skills

Hardware — Circuits, Microcontrollers, Injection Molding, TIG Welding, Mill, Lathe, Thermoform, Sandcasting
Software — Robot Operating System, Python, Assembly, C, MATLAB, Linux, Altium, SolidWorks, Creo, Onshape

Leadership

Penn MEAM Diversity Equity and Inclusion (DEI) Scholar, Philadelphia, PA 2022-Present
- Lead a DEI-focused graduate student recruitment project as a student member of the Mechanical Engineering (MEAM) department's DEI Task Force

Polygence Mentor, virtual 2022-Present
- Mentor high school students through self-directed research projects, including writing review papers on a robotics topic and constructing an electromechanical system

More Active Girls in Computing (MAGIC) Mentor, virtual 2020-Present
- Mentor high school girls in independent mechatronics projects, including hanging drawing robot and miniature self-driving car

Penn MEAM520 Introduction to Robotics Teaching Assistant, Philadelphia, PA Jan.-May 2022
- Develop + organize labs for students to work with Franka Emika Panda robotic arms

Stanford ME218 Smart Product Design (Mechatronics) Course Assistant, Stanford, CA 2019-2020
- Assisted with circuit design, implementation, and C and assembly programming
- Repaired lab equipment including computers, oscilloscopes, and printed circuit boards

Pappalardo Apprenticeship, Cambridge, MA 2017-2018
Lab Assistant and Senior Machinist for MIT 2.007 Robotics Course
- Assisted students in designing and fabricating their individual robots
- Replicated from scratch sandcast and machined parts from original drawings of an 1897 Herreshoff steam engine, now on display at the MIT Museum

Global Teaching Labs Teacher, Tangier, Morocco + Guadalajara, Mexico Jan. 2017 + 2018
- Taught students aged 8-15 at the American School of Tangier and Tecnológico de Monterrey Guadalajara through maker space projects, including a PID-controlled balancing robot, v-plotter robot using recycled inkjet motors, and pinhole cameras

Design For America (DFA), Cambridge, MA 2015-2018
President, Project Director, Corporate Relations Director, Technical Mentor
- Recruited and provided resources for 8 project teams to tackle real-world design problems in the local community

MIT MakerWorkshop, Cambridge, MA Jan.-June 2018
Mentor, Milling Machine Specialist
- Trained MIT undergraduate and graduate students on campus milling machine use
- Supervised and provided assistance to members of the MakerWorkshop machine shop

MIT Camp Kesem Counselor, Cambridge, MA 2016-2018
- Acted as a counselor to kids ages 6-18 whose parents are/were affected by cancer
- Coordinated a unit of campers aged 13-16 years for a week-long camp each summer

Maker Lodge Mentor + CAD/CAM Training Chair, Cambridge, MA 2016-2018
- Qualified MIT freshmen for campus machine shop use through equipment training
- Developed a CAD/CAM training curriculum using SolidWorks and HSMWorks

TechX, MakeMIT 2016 Event Director, Cambridge, MA 2014-2016
- Directed a committee in organizing a bi-weekend hardware hackathon for 300 students

MIT Robotics Team Executive Mechanical Engineer, Cambridge, MA 2014-2016
- Designed and presented team rovers at international GITEX conference in Dubai, UAE for NASA Sample Return Centennial Challenge