Lara Zlokapa

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Cambridge, Massachusetts, USA

OBJECTIVE

I strive to apply mechanical engineering design to empower others to live to their full potential. Seeking a full-time job upon completion of my master's degree from MIT this May, I hope to apply my product design, biomechanics, robotics, and leadership experience to future work in the medical device field.

EDUCATION

MIT, M.S., Mechanical Engineering (GPA 5.0/5.0) Sept. 2020 – May 2022 (Expected)
Folger Fellow (2020 – 2021), NSF GRFP Honorable Mention (2021)

University of California, Berkeley, B.S., Mechanical Engineering (GPA 3.7/4.0) Aug. 2016 – May 2020
Dean's Honors List Spring 2019, College of Engineering

TECHNICAL EXPERIENCE

MIT, Cambridge, Massachusetts Sept. 2020 – Present
Graduate Research Assistant under Professors W. Matusik and P. Agrawal
Master's Thesis, Robotics: Science and Systems 2021, IEEE International Conference on Robotics and Automation 2022

- **Project**: Cable-driven, modular, parametric robotic manipulators with integrated tactile sensing.
- Designing modular robot components and assembly pipeline to produce a robust, expressive design space.
- Prototyping (FDM 3D printing), controlling (Python), and testing manipulators' ability to perform tasks.

SuitX, Emeryville, California May 2019 – Feb. 2020
Engineering Intern

- **Project**: Passive one-size-fits-all exoskeleton that minimizes arm and shoulder injury during heavy tool use.
- Applied biomechanics to create weight-distributing exoskeleton for diverse body sizes based on user testing.
- CADded and FEA tested design (Solidworks). FDM 3D printed prototypes. Performed physical failure tests.
- Prepared parts drawings for commercial manufacturing (stamping, CNCing) in China.

Berkeley Expert Systems Technologies (BEST) Lab, UC Berkeley, California Sept. 2018 – May 2019
Research Intern under Professor Alice Agogino

- **Project**: Body-powered drumming prosthesis for trans-radial amputees.
- Designed user-friendly, cost-effective prosthesis based on design criteria from surveying drummers.
- Designed and FDM 3D printed adjustable drumstick-spring holder using BioFlex for prosthesis.

UC Berkeley, Berkeley, California
EnableTech Club Member, Global Product Development Class Student Jan. 2018 – May 2018, Jan. 2019 – May 2019

- **Project**: Gripper for tetraplegic users without grip strength to pick up objects from floor and shelf.
- Designed, CADded (SolidWorks), laser cut, and FDM 3D printed gripper prototypes and product packaging.
- Applied DFM, DFA, and DFS to design, and performed competitor market analysis on commercial grippers.
- Performed user testing with 3 tetraplegic individuals.

Applied BioMechanics, Alameda Island, California May 2018 – Jan. 2019
Engineering Associate in Accident Reconstruction Simulation

- **Project**: Vehicle collision dynamics reconstruction and simulation for 30+ expert witness court testimonies.
- Simulated vehicle collisions using dynamics software and performed kinematics calculations to verify results.

Berkeley Emergent Space Tensegrities (BEST) Lab, UC Berkeley, CA May 2017 – Nov. 2017
Research Intern under Professor Agogino

- **Project**: End caps for 6-bar spherical tensegrity search and rescue robot.
- Designed and 3D printed durable, frictionless caps, and soldered and assembled over 48 motor circuit boards.

LEADERSHIP & OUTREACH

MIT Graduate Association of Mechanical Engineers, Cambridge, MA Jan. 2021 – Present
Social Chair

UC Berkeley Girls in Engineering Summer Program, UC Berkeley, CA May 2020 – Aug. 2020
Principal Program Assistant

Human Powered Vehicles Club, UC Berkeley, CA Apr. 2018 – Aug. 2019
President

- Led 30-person club in design, testing, and manufacturing of a human-powered vehicle to compete at 70mph.
- Performed mechanical analysis and FEA testing on frame to ensure rider safety in 70mph crashes.
- Managed club project management, resources, timelines, subteam progress, sponsors, etc.

Society of Women Engineers, Berkeley, CA Jan. 2017 – May 2018
Committee Member of the Month (March 2017)
Career Options Committee Member, Shadow-an-Engineer Externship Committee Member

Pioneers in Engineering (PiE), UC Berkeley, CA Jan. 2017 – May 2017
Mentor for High School Robotics Competition Team

Women in Science and Engineering, UC Berkeley, CA Aug. 2016 – May 2017
Conference Committee Member

PUBLICATIONS

L. Zlokapa, Y. Luo, J. Xu, M. Foshey, K. Wu, P. Agrawal, W. Matusik, "An Integrated Design Pipeline for Tactile Sensing Robotic Manipulators." *IEEE International Conference on Robotics and Automation (ICRA)*, 2022.

J. Xu, T. Chen, **L. Zlokapa**, W. Matusik, S. Sueda, and P. Agrawal, "An End-to-End Differentiable Framework for Contact-Aware Robot Design." *Robotics: Science and Systems (RSS)*, 2021. https://arxiv.org/abs/2107.07501

L. Zlokapa, "An Integrated Design Pipeline for Tactile Sensing Robotic Manipulators," M.S. Thesis, Sch. of Eng., MIT, Cambridge, MA, 2022. In progress.

SPECIAL SKILLS

Design/Modeling: SolidWorks, AutoCAD, Rhino, GD&T dimensioning and tolerancing, FEA, DFM, DFS, 3D printing, machine shop, mechatronic design, soldering, laser cutting, water jet cutting.
Programming: MATLAB, Python, Arduino, basic machine learning.
Languages: English (native), French (intermediate), German (beginner), Serbo-Croatian (beginner).
Other: Adobe Creative Suite, MS Office Suite, Word, Excel.

HOBBIES

Swing dancing, hiking with friends, biking, baking, drawing, painting, or swimming.