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.

EDUCATION

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

University of California, Berkeley (GPA 3.7/4.0) Aug. 2016 – May 2020
B.S., Mechanical Engineering
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 (RSS) 2021

- **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.

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.

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.

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.

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.

PUBLICATIONS

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

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, Y. Luo, J. Xu, M. Foshey, K. Wu, P. Agrawal, W. Matusik, "An Integrated Design Pipeline for Tactile Sensing Robotic Manipulators." Submitted.

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.
- Managed club project management, resources, timelines, subteam progress, outreach, sponsors, etc.

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

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

- Awards team earned: 2nd place team, PiE Season Award, Software Award finalist.

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

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).

HOBBIES

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