Lara Zlokapa

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San Diego, California, USA

OBJECTIVE

I strive to apply mechanical engineering design to empower others to live to their full potential and 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
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

Illumina, San Diego, California June 2022 – Present
Mechanical Engineer, Precision Motion Design

- **Project:** Precision motion module in a future DNA sequencing instrument.
- Primary module owner: lead Europe/Asia vendor collaboration from design (SolidWorks) to production.
- Perform theoretical and practical motion, force, motor, and vibration/stiffness analysis to validate design.
- Use data-informed design: analyze and extrapolate (Python) extensive datasets of current instrument performance to anticipate design requirements of future instruments.

MIT, Cambridge, Massachusetts Sept. 2020 – May 2022
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.
- Designed modular robot components and assembly pipeline to produce a robust, expressive design space.
- Prototyped (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.

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.

LEADERSHIP & OUTREACH

Bostonia Global High School, San Diego, California — Oct. 2022 – April 2023
Career Mentor for Students

MIT Graduate Association of Mechanical Engineers, Cambridge, Massachusetts — Jan. 2021 – May 2022
Social Chair

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

Human Powered Vehicles Club, UC Berkeley, California — 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, California — 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, California — Jan. 2017 – May 2017
Mentor for High School Robotics Competition Team

Women in Science and Engineering, UC Berkeley, California — 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.

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.