Samantha Staudinger

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Education

University of Michigan, College of Engineering ***August 2022- present***
Robotics Engineering B.S.E with Electrical Engineering minor GPA: 3.871 */4.0*
Academics Honors and Awards:

- College of Engineering's Singleton Distinguished Class Prize (given to one engineer in the class); Class of 1931E Scholarship; Tau Beta Pi Student Award; William J. Branstrom Freshman Prize (top 5%); Dean's Honor List

Technical Skills: Proficient in C++, C, Python, R, Julia, MatLab, Fusion360, SolidWorks

Research and Projects

Computational Nanostructure Research Lab, University of Michigan ***June 2023-Present***
Machine Learning Research Assistant

- Leads Bayesian inference approach with Markov Chain Monte Carlo to optimize parameter chains of phase-field simulations in terms of computational efficiency
- Develops a Python-based code infrastructure to automatically collect, process, and store thermodynamic and kinetic model data in a MongoDB database

M-STARX ***August 2023 - Present***
Electrical and Programming Member

- Collaborate on the implementation of sensors and its control algorithm for a novel exoskeleton
- Research, integrate, and test active action-reaction sensors including IMU, torque, surface EMG, myoelastic sensors

Michigan Neuroprosthetics ***August 2022 - May 2023***
Mechanical Subteam Lead

- Led mechanical subteam to redesign the modular hand of prosthetic arms for pediatric patients
- Presented and facilitated discussions on CAD designs of various prototypes, made in Fusion360

Integrated Actuator, Structure, and Control Componentry for Soft Robots ***January 2024 - Present***

- Work specifically on the electrical components of the stepper motors, pressure sensors, and membrane-based valves for a prototype of a refreshable braille display
- Led weekly meetings and collaborate on a team to present design reviews for the project sponsor

BallBot ***August 2023 - December 2023***

- Built a dynamically-stable mobile robot designed to balance on a single spherical wheel
- Determined proper motor control; Integrate IMU and encoder sensors to microcontrollers; Write control strategies for multiple axles in python; Evaluate low-pass filter in MatLab

Food-Delivery Robot*, Robotics Mechanisms Team Project** ***August 2022 - December 2022

- Led the integration of cameras utilizing OpenCV Object Detection via Python
- Incorporate vision sensors and edge detection code for path sensing systems

Notable Publications and Other Experiences

- Staudinger, S., (2023) "Weighing Government Intervention during the Global Covid Health Crisis", Undergraduate Journal of Public Health 7. doi: https://doi.org/10.3998/ujph.3944
- Andrews, W. Beck; Tan, Shibo; Mensah, Xander; Willwerth, Joshua; Huang, Jindong; Staudinger, Samantha; et al. (2023). AMMBER: the AI-enabled Microstructure Model BuildER. U.S. National Science Foundation's CSSI 2023. https://doi.org/10.6084/m9.figshare.24222613.v1

Tau Beta Pi Engineering Honors Society, Member ***2024 - Present***
U of M Robotics Department, Instructional Aide ROB 204 and ENGR100: Robotic Mechanisms ***2023 - Present***
Robotics Undergraduate Student Council, Leadership ***2023 - Present***
Society of Women Engineers, Member ***2022 - Present***
Stanford University's Online High School, Alumni ***2022 - Present***
IEEE/RSJ International Conference on Intelligent Robots and System, Undergraduate Ambassador ***2023***