Liudmila Serebrennikova

www.lserebrennikova.com | 774-502-3975 | ls4013@columbia.edu | linkedin.com/in/liudmila-serebrennikova

EDUCATION

Columbia University — New York City, NY
MS in Mechanical Engineering — Dec 2024

Worcester Polytechnic Institute — Worcester, MA
BS in Biomedical Engineering and Mechanical Engineering — May 2023

PROFESSIONAL EXPERIENCE

Robotics Intern — New York City, NY
UEIL at Columbia — Jan – Oct 2024

- Installed and configured the ROS environment on a Linux PC to control the UR5e robotic arm. Enabled automatic end effector targeting through motion planning algorithms with a resultant latency of less than 0.005 seconds.
- Collaborated with the research team to establish the Safety Protocols applicable for Clinical Studies.
- Documented progress reports and manuals for internal use following GDP (Good Documentation Practices).

Career Development and Alumni Relations Lead — New York City, NY
Columbia University Robotics Club — Feb - Dec 2024

- Mentored graduate and undergraduate students in identifying career paths and passions, facilitating access to employment opportunities in Columbia labs, and guiding undergraduates through the graduate school selection and application process.
- Organized workshops and professional events, including Professional Tech Talks, Career Panels with alumni, and the "Hack & Build" hardware hackathon, to boost member participation and career readiness.

Undergraduate Research Assistant — Worcester, MA
Medical FUSION Lab — Dec 2020 - May 2023

- Conducted lab experiments utilizing Q-smart 450 laser with an optical parametric oscillator, facilitated by a custom-built MATLAB toolbox.
- Recorded and organized experimental results following GDP.
- Delivered weekly presentations during lab meetings, showcasing analyzed findings from experiments and reporting on the research progress.

Author and Oral Presenter — San Francisco, CA
SPIE Photonics West and BiOS — Jan - Feb 2023

- Introduced independent research on the robust MATLAB-based contrast agents quantification algorithm.

PROJECTS

Columbia University — New York City, NY
Custom Built Robot "Yeti1.0" — Sep - Dec 2023

- Designed, manufactured, and assembled a humanoid bipedal robot with 3 DOF per leg and 1 DOF per arm, utilizing a total of 8 servomotors with a 240-degree range and a Raspberry Pi as an independent controller.
- Converted the Solidworks CAD model into URDF file and optimized walking algorithm via PyBullet physics simulator. The final prototype was capable of traveling 20 cm in 30 seconds.

Worcester Polytechnic Institute — Worcester, MA
Smart Army Exoskeleton Major Qualifying Project — Aug 2022 - Apr 2023

- Coordinated a team of 6 engineers with diverse backgrounds in designing and building of a lower-body exoskeleton for military purposes, conducting an optical motion capture study to determine output requirements for the wearable technology.
- Iterated through 4 design prototypes using rapid prototyping techniques and assembled the final prototype with actuators driven by strain gauge constructions.

Worcester Polytechnic Institute — Worcester, MA
Partial Hand Prosthetic Major Qualifying Project — June - Sep 2021

- Collaborated with 12 Engineers to implement improvements to the existing partial hand prosthetic design.
- Developed, prototyped, and manufactured bone movement sensor using a molding technique combined with a stereolithography approach; worked on an improved prosthetic sleeve.

SKILLS

Programming: MATLAB; Python; Simulink; ROS; Arduino IDE; R-studio
Techniques: CAD; FDM 3D printing; Stereolithography (SLA); CNC Machining; Laser Cutting; FEA; Soldering; "Instron"; "AMTI" force plates; Laser; "Vicon" Optical mocap; Smart Biosensors;
Software: SolidWorks; Arduino IDE; Microsoft Word; Excel; PowerPoint; Outlook
Languages: Russian (Native/Full Proficiency); French (Limited Working Proficiency); Chinese (Elementary Proficiency)