Sidney Nimako

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EDUCATION

Carnegie Mellon University
Master of Science in Robotics (3.9/4.0)
May 2025
Selected Coursework: Advanced Mechatronic Design, Mechanics of Manipulation, Introduction to Machine Learning

Carnegie Mellon University
Bachelor of Science in Mechanical Engineering (3.5/4.0)
May 2023
minor in Robotics
Selected Coursework: Robot Kinematics and Dynamics, Human-Robot Interaction, Robotic Systems Engineering, Modern Control Theory

RESEARCH & PROFESSIONAL EXPERIENCE

CMU Zoom Lab & SHRED — Pittsburgh, PA
Graduate Researcher — Fall 2023 - Present
- Developed and fabricated low-cost, centimeter-scale robots optimized for search-and-rescue operations
- Mentored undergraduate researchers in mechanical design principles and experimental methodologies.

DoorDash — San Francisco, CA
Hardware Engineering Intern — Summer 2022, Summer 2023
- Led design and fabrication for electrical system for a 4-quadrant dynamometer using a BLDC motor and customized controller firmware
- Designed an intuitive GUI for dynamometer interfacing, enabling seamless operation by non-expert users
- Developed controllers to simulate test and road conditions

Carnegie Mellon University — Pittsburgh, PA
Teaching Assistant — Spring 2023, Spring 2024
- Facilitated hands-on research group focused on developing simulations for lunar locomotion using advanced dynamics modeling
- Delivered course content on Dynamics Systems and Controls to 90+ students
- Conducted office hours to provide content and programming assistance

CMU Robomechanics Lab — Pittsburgh, PA
Undergraduate Researcher — Fall 2023, Spring 2023
- Characterized inertial and geometric impacts of active spines on quadrupedal robots
- Wrote C++ simulation environments for assessing robot performance collecting 100+ hours of data

Facebook AI Research — Pittsburgh, PA (Remote)
Robotics Intern — Summer 2021
- Redesigned multi-digit robotic hand to reduce envelope by 20%, enhance range of motion, and streamline assembly processes
- Wrote documentation on assembly process and for existing hand design

PROJECTS

Additional Projects available at http://snibo.me

Phlebot
Mechatronic Design | Spring 2023
- Designed and prototyped an autonomous venipuncture
- Led electromechanical system integration and co-led mechanism design

Learning Safe Manipulation with Contact
Algorithms for Interactive Robotics | Fall 2023
- Implemented DDQN in custom MuJoCo environments to implicitly learn the safety set and task policies

Toss Juggling In-Sim (and on Hardware)
Mechanics of Manipulation | Fall 2023
- Engineered a DDPG policy to juggle in a custom MuJoCo environment
- Co-designed a compatible hardware platform to embody the policy

Jenga Tower Robot
Robot Kinematics and Dynamics | Fall 2021
- Implemented control software for a 4-dof robotic arm to build a Jenga tower in record time

Macro pad Keyboard
Independent | Summer 2021
- Created a custom7-key mechanical keyboard with a built-in rotary encoder

PUBLICATIONS

Boateng, S. N., et al. (2024). Heterogeneous Collaboration: A new approach for search-and-rescue operations. In *Proceedings of the IEEE International Symposium on Safety Security Rescue Robotics (SSRR)*.

SKILLS

Programming: Python, C, C++, MATLAB, Rust
Software: KiCAD, Linux, SolidWorks, Unity, OnShape, ROS
Prototyping: 3D Printing, Mill, Lathe, Soldering, Laser Cutting, Circuit Design, PCB(A)

LANGUAGES

French – Limited Working Proficiency

HONORS

Dean's List | Spring 2022, Fall 2022, Spring 2023
University Honors (2023) from Carnegie Mellon University
Departmental Honors (2023) from CMU Department of Mechanical Engineering
Outstanding Citizenship Award (2019) from The National Society of the Sons of The American Revolution