Matthew Hutchinson

Los Angeles | (415) 596-0301 | mahutchinson@ucla.edu | linkedin.com/in/matt-hutch

Mechanical Engineer pursuing an M.S. at UCLA with a focus in Design, Robotics, and Manufacturing. Passionate about building control-driven systems at the intersection of biomechanics and automation. Skilled in Python, MATLAB, SolidWorks, and digital fabrication.

Education

UCLA | Master of Science in Mechanical Engineering (DRoM) — September 2025 - June 2026

Bionic Systems Engineering, Soft Robotics, Data Science, Advanced Robotics (planned), Compliant Mechanism Design (planned), Reinforcement Learning (planned)

UCLA | Bachelor of Science in Mechanical Engineering — September 2022 - June 2024

Robotics (Kinematics, Dynamics, & Control), Rapid Prototyping & Manufacturing, Mechanism Design, Manufacturing, Data Structures & Algorithms, C++, Python

Work Experience

UCLA Engineering MakerSpace — **April 2024 - July 2024**

Digital Fabrication Artist

- Designed 3D-layered art pieces using laser cutters, 3D printers, and hand tools (acrylic, wood, paper)
- Led student workshops on fabrication techniques and digital tools (Illustrator, Fusion 360)
- Mentored 30+ students on design thinking and hands-on prototyping

UCLA DevX — **September 2022 - June 2024**

Autonomous Rover Developer

- Designed and built an autonomous rover for street navigation and disk transport, featuring a rack-and-pinion scooper arm and crank-based lift for elevated drop-off
- Programmed drive and control systems using Python, OpenCV (line detection), and PID loops on Raspberry Pi and Arduino
- Validated system on ramped obstacle course achieving accurate object delivery and path tracking

Robotic Arm For Automated Fiber Placement — **March 2024 - June 2024**

Member

- Designed impedance controller for robotic roller to regulate force during composite fiber layup
- Maintained target force of 50±10N while minimizing lateral loads and ensuring structural integrity
- Generated fiber deposition trajectories using Bezier surface intersections
- Simulated full system in PyDrake and validated control logic through bench tests

NASA Langley Research Center — **August 2022 - August 2022**

Intern, AAM Safety Team

- Investigated safety and airspace challenges for Advanced Air Mobility (AAM) and eVTOL aircraft • Proposed a conceptual detect-and-avoid (DAA) system using neural networks and multi-sensor fusion for eVTOL aircraft • Explored urban air mobility use cases and integration barriers for AAM systems • Delivered a conceptual safety assurance framework to NASA engineers and researchers

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Skills: Data Science/Machine Learning, MATLAB, Python, SolidWorks

Hobbies: Acrobatics, Cooking, Digital fabrication, Motorcycles, Yoga