MATTHEW SCOTT

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EDUCATION

University of California Irvine - Irvine, CA — Expected Graduation: March 2026
B.S., Mechanical Engineering

ENGINEERING PROJECT EXPERIENCE

Stair-Climbing Rover - Senior Design Project — Fall 2025 - Present
Physics Analyst

- Analyzed and validated mechanical performance of six-wheel rocker-bogie rover designed to autonomously transport payload up 19-step concrete staircase under strict geometry and stability constraints
- Conducted multi-phase physics analysis calculating chassis pitch angles, wheel contact conditions, torque demands, and center-of-mass behavior to ensure climb stability and reliability
- Developed and executed proof-of-concept test procedures to validate wheel traction, articulation, pitch angles, and ground clearance using physical measurements and video analysis

Impulse-Driven Autonomous Navigation Robot - Mechanical Systems Laboratory — Spring 2025
Team Lead

- Led 4-person team; managed sprints and BOM; integrated 3-tier chassis with pneumatic propulsion and servo steering
- Built Arduino-based control system (C/C++) with LIS3MDL magnetometer for heading estimation; implemented and tuned PI control through experimental testing
- Calibrated servo parameters through experimental testing to minimize trajectory deviation

Autonomous Object-Detecting Line-Following Rover - Engineering Lab — Winter 2022
Head of Fabrication

- Designed/assembled 3D-printed rover with claw; laser-cut components from SolidWorks models
- Programmed Arduino Uno for dual-mode navigation with PI control, PixyCam object recognition, and photoresistor-based line following
- Achieved Top-6 of 30+ teams in faculty-judged performance evaluation

TECHNICAL SKILLS

CAD Software: SolidWorks, SketchUp, SH3D
Simulation: MATLAB, Simulink
Manufacturing: 3D Printing, CNC/manual mill and lathe, Laser cutting
Programming: Arduino IDE, Python, Java
Reporting: Microsoft Office, Google Workspace

LEADERSHIP & ACTIVITIES

Kappa Sigma Fraternity — Jan 2024 - Dec 2024
Vice President

- Led executive board meetings and coordinated chapter operations for 50+ member organization, managing event logistics, budgeting, and team delegation
- Planned and executed 20+ campus events and philanthropic initiatives, raising $15,000+ for charitable organizations through strategic fundraising and community engagement

American Society of Mechanical Engineers — Sep 2023 - Present
Member

- Engage in technical workshops and industry webinars focused on advanced manufacturing, design optimization, and emerging engineering technologies
- Leveraged professional network for collaboration and career development