Yehoshua (“Shua”) Halle

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EDUCATION

Carnegie Mellon University (CMU) **Anticipated Graduation: May 2027**

M.S. Robotics Systems Development

University of Maryland College Park (UMD) **Graduated December 2024 with Honors**

B.S., Mechanical Engineering

Minor, Robotics and Autonomous Systems **Dean’s List 2020-2024**

GPA: 3.84

EXPERIENCE

Powertrain Subteam Leader in Terps Racing (Baja SAE team) at UMD *2023-2024*

- Coordinated team of 10+ students to design and manufacture a custom ATV powertrain
- Planned and executed projects to increase reliability and reduce manufacturing time
- Reviewed designs for compliance with competition rules and manufacturability

Associate Researcher at NIST Gaithersburg *Summer 2023 & 2024*

- Developed digital twins (synchronized digital model) of a UR5e robot arm in support of ISO-23247 standard
- Evaluated the effectiveness of ISO-23247’s development procedures through use-case implementations
- Implemented real-time control of robotic arm and its digital twin using ROS2, C++, and MATLAB
- Developed Human-Machine Interface on Linux for robot monitoring and control

“Assistive Feeder” Project at Volunteers for Medical Engineering *Fall 2023 & 2024*

- Designed a robot to help quadriplegic people eat meals with more independence at low cost
- Communicated with stakeholders consistently to ensure fulfillment of customer requirements
- Programmed kinematics solver on Arduino UNO to drive movement
- Kept cost of device below $250, while similar competing products are priced over $4000

Powertrain Designer and Manufacturer in Terps Racing (Baja SAE team) at UMD 2022-2024

- Designed and manufactured critical driveshaft and belt drive parts, with no failures during competition
- Performed FEA analyses and hand calculations for parts to maximize strength to weight ratio
- Developed simulation of vehicle and transmission to optimize transmission parameters and final drive ratio
- Optimized transmission parameters to improve acceleration time from 5.98s to 4.34s
- Placed 16th of 107 at Baja SAE competition in Williamsport, PA

“Micro Arm” Project in Electronics class at UMD *Spring 2023*

- Designed and 3D printed a robot arm for autonomous pick and place operations
- Implemented a blob detection computer vision algorithm in Java and OpenGL

Statistics Teaching Fellow at UMD *Spring 2023*

- Taught statistics to students in office hours through solving and explaining problems
- Wrote and graded exam questions

SKILLS

Engineering: CAD, Technical Drawings, GD&T, FEA, CNC programming, DFM, Modeling and Simulation
Software: SOLIDWORKS, Inventor, Fusion 360, MATLAB, Simulink, Microsoft Office, Linux
Programming: Python, C, C++, C#, Java, Systems Programming, Embedded Programming
Math: Optimization, Numerical Methods, Finite Element Methods, Linear Algebra, Differential Equations, Statistics
Soft: Teamwork, Leadership, Technical Communication, Time Management