Reyan Aberra

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Portfolio: https://reyanaberra.github.io/

EDUCATION

Arizona State University, Ira A Fulton Schools of Engineering **Tempe, AZ**
Bachelor of Science in Mechanical Engineering (Computational Mechanics) August 2022 - May 2026
GPA: 4.0 | **Class Standing:** Junior
Relevant Coursework: Computer-Aided Design, Programming Principles w/ MATLAB/Python/C++/Excel, Numerical Methods, Statics, Dynamics, Thermodynamics, Fluid Mechanics, Mechanics of Materials
Ongoing Coursework: Heat Transfer, Materials Science, Structural Mechanics, Experimental Statistics

EXPERIENCE

Intel Corporation **Chandler, AZ**
Process Engineer Intern January 2024 - August 2024
- Redesigned, 3D printed, and implemented a protective mechanical guard using SolidWorks to protect robot end effectors and replace vendor supplied parts, achieving a cost reduction of over 20%
- Conducted nonlinear dynamic analysis using SolidWorks Simulation to ascertain part durability under impact conditions, optimizing design for performance and safety
- Adjusted tool temperature and cycle time parameters using APC and monitored tool trends using SPC, ensuring tool readiness and product safety for the 10 nm and 22 nm process technology nodes
- Occasionally performed or supervised calibration of wafer transfer robots in the factory to reduce defects

ACTIVITIES

Sun Devil Robotics Club **Tempe, AZ**
Automated Card Folder Winter 2023 - Spring 2024
- Designed an automated card folder for KeHE Distributors as a member of the Sun Devil Robotics Club
- Drew initial prototype designs for various mechanical mechanisms to facilitate folding motion
- Designed a lead-screw linear actuator mechanism using Solidworks to allow for vertical motion of platform

University Rover Challenge Spring 2023 - Fall 2023
- Designed the mechanical body of a planetary rover as a member of the Sun Devil Robotics Club
- Designed and 3D printed lightweight and durable spoke wheels capable of traversing the Martian terrain
- Selected waterproof material for front panel housing the interior biological and electrical components and designed a connector for said panel using SolidWorks, ensuring functionality in harsh and wet environments

PROJECTS

Computer Cooling Case Summer 2024
- Designed and 3D printed a thermally efficient protective case for a Raspberry Pi 5 using SolidWorks
- Performed a coupled fluid-thermal simulation in Ansys Fluent to optimize cooling and airflow after geometry cleaning and meshing, ensuring chip temperatures remained within safe limits
- Validated results through physical testing, predicting real-world thermal performance with 95% accuracy

Handheld Thermal Imager Summer 2023
- Designed and programmed a thermal imager with an ESP32 microcontroller and an IR thermal camera
- Designed and 3D printed an ergonomic enclosure using Fusion 360 to allow for portable handheld usage
- Designed the circuitry and manually wired all electromechanical components
- Programmed three different mechanical input devices and two new color palettes using C++ and the Arduino IDE and MATLAB libraries for enhanced data visualization

CREDENTIALS

Awards: National Recognition Scholar, Dean's List, AP Capstone Diploma, AP Scholar with Distinction
Certifications: Certified SolidWorks Associate, OSHA General Industry Safety & Health (Healthcare)
Design & Analysis: SolidWorks, SolidWorks Simulation, ANSYS Fluent, Fusion 360, AutoCAD, 3D Printing
Programming & Electronics: Python, C++, MATLAB, Arduino, LTSpice, Soldering, Breadboarding