Ethan Sanchez

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EDUCATION

University of Pennsylvania; Philadelphia, Pennsylvania — GPA: 4.00/4.00
M.S. in Robotics — (Expected May 2026)
University of Colorado Boulder; Boulder, Colorado — GPA: 3.85/4.00
B.S. in Mechanical Engineering, Minor in Computer Science — May 2024

ENGINEERING EXPERIENCE

Undergraduate Research Assistant; *THING Lab*, Boulder, CO May 2022 - Aug. 2023

- Designed and implemented a magnet-based system for creating board games that can be played remotely
- Modeled and prototyped a mount to connect a servo, RFID scanner, battery, and PCB to Toio robots, supporting PhD student research
- Created a Scotch Yoke mechanism to control magnet movement for remote board games, providing a core system functionality

Project Management Intern; *Zone 4 Systems Integration and Design*, Fayetteville, AR May 2023 - Aug 2023

- Tracked daily build progress and work hours using Procore construction management software
- Completed quality control inspections of Walmart's Alphabot pickup order fulfillment system
- Collaborated with bilingual foreman on a spanish speaking job site to identify inventory deficiencies and coordinate replacement orders to avoid build stops

Mechatronics Intern; *Exyn Technologies*, Philadelphia, PA May 2016 - May 2020

- Modeled drone sensor mounts, electronic enclosures, and flight simulation environments using SolidWorks and Fusion 360 CAD software
- Prototyped and iterated designs using MakerBot Replicator 2 and Formlabs Form 2 3d printers
- Wired and programmed Teensy and PSoC microcontrollers using I2C and SPI communication protocols
- Programmed a point cloud visualization application for an Oculus Rift S headset in C# using Unity

PROJECTS

Electromechanical Engineer, Senior Capstone Project, Boulder, CO Aug. 2023 - May 2024

- Integrated electromechanical components (stepper motor, DC motor, solenoid) to enable casting distances up to 35 feet and variable reeling speeds
- Programmed Teensy microcontroller to enable individuals with spinal cord injuries to control device functionality via sip and puff tubes
- Created custom PCB with back current protections to compactly house electrical components, ensuring durability and functionality in a waterproof design

Component Design, Boulder, CO Jan. 2023 - May 2023

- Gained experience using saws and mills while manufacturing components for a drill powered tricycle
- Used precision boring head to get a hole with a tolerance of 6 thou in order to press fit a bearing
- Designed a robust chassis with optimized gearing to guarantee smooth performance under high loads, successfully hauling 875 lbs uphill

INDEPENDENT LEARNING

Self-directed video game development Jan. 2018 - May 2022

- Created and animated a skeletal mesh of a transformer to be used in Unreal Engine.
- Implemented movement, projectile, and other game logic using Unreal Engine blueprint scripting

Rhetoric Club; *Mount Sophia Academy*, Newark, DE Sept. 2017 - May 2020

- Learned techniques to improve public speaking; Competed in ACSI Public Speaking competitions

SKILLS: SolidWorks, Fusion 360, MATLAB, Simulink, PCB design, object-oriented programming, C++, Python, Git, Resilience, Communication, Interdisciplinary Collaboration
RELEVANT COURSEWORK: Applied Machine Learning, System Dynamics, Intro to Robotics, Mechatronics