Jesus Gonzalez

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Education

Bachelor's of Science in Electrical Engineering
Utah Tech University, Saint George UT, Spring 2025
Engineer in Training: https://account.ncees.org/rn/2525533-1797895-54b449c
GitHub: https://github.com/ChuyG0414?tab=repositories
GPA: 3.96

Projects

Autonomous Towing Vehicle — August 2024-Present

- Developing control algorithms for an autonomous towing vehicle using PID, and Extended Kalman Filter (EKF).
- Simulating system dynamics and control strategies in MATLAB before real-world implementation.
- Designing and optimizing a homing procedure to ensure accurate vehicle return based on sensor data and control feedback.
- Controlling a brushed DC motor with analog input and a linear actuator via PWM.
- Utilizing various communication protocols, including SPI and I2C, for sensor integration and system control.

Undergraduate Research — August 2024-Present

- Utilizing Arduino microcontroller to collect data from a 6DOF accelerometer to measure squat angles of 18 participants.
- Implementing a vibrational motor for tactile feedback to enhance training and rehabilitation.
- Aiming to improve training effectiveness and support rehabilitation efforts.

Turbo Regatta — January 2024-May 2024

- Collaborated with a team of three mechanical engineers and one electrical engineer to design and fabricate a propulsion system for a paddle boat within specified constraints.
- Designed the user interface and motor topology, implementing a BLDC in-runner motor configuration while adhering to IP28 waterproof standards.
- Integrated various sensors and hardware, including RTD PT100 amplifiers, voltage modules, DC-DC buck converters, emergency kill switch, fuses, a microcontroller, Hall Effect sensors, and an I2C LCD module.

Experience

Lego Robotics Coach — September 2024-January 2025

- Led team in designing, building, and programming LEGO Mindstorms robots for competitions.
- Mentored 10 team members in coding, mechanical design, and problem-solving strategies.
- Managed project timelines and coordinated tasks to meet competition deadlines.

Utah Tech University-Head Math Tutor — August 2024-Present

- Conduct 1-on-1 private math tutoring sessions, hosting approximately 10 appointments per week.
- Provide personalized instruction in College Algebra, Stats, Trigonometry, Pre-Calculus, and Calculus I–III to help students master challenging concepts.
- Mentor and supervise other tutors, ensuring effective tutoring strategies and quality academic support for all students.

Atwood Innovation Plaza Intern — May 2024-August 2024

- Developed an automated golf cart, specifying components like a linear actuator, microcontroller, and sensors.
- Programmed the microcontroller for sensor integration, motor control, and automation features.

- Analyzed data sheets and tested system performance for accuracy and stability.

Utah Tech Stem Outreach Assistant — May 2024-August 2024

- Developed, built, and taught STEM curriculum to classes of 15–20 K–9 students, covering topics from life sciences to microcontroller programming.
- Led classroom sessions, facilitating hands-on learning and interactive activities.
- Collaborated with team members to enhance teaching materials and refine instructional methods.

OCD Automation Intern — May 2023-July 2023

- Assisted in the development and testing of automation solutions, gaining hands-on experience with robotics, PLCs, and SCADA systems.
- Supported engineers in the design phase by conducting research, collecting data, and contributing to the creation of technical specifications for automated systems.
- Participated in the installation and configuration of hardware components, such as sensors and control panels, within industrial machinery.

Utah Tech Stem Outreach Makerspace Manager — September 2022-July 2023

- Performed maintenance and troubleshooting on 3D-printers, familiar with LulzBot TAZ 6, Creality Ender 3 and 5
- Mentored on average 7 attendants every hour, using training curriculum I constructed to advise and inspire attendants on the proper techniques to 3D printing, laser cutting, and engraving
- Assessed and improved prototyping models of students and community members, specifically in Tinker cad, and Adobe Illustrator
- After school program instructor, mentoring 6 middle school students on the engineering design process and critical thinking

Utah Tech University Math Tutor — January 2021-Present

- Explained math concepts in a caring and encouraging environment to help students learn
- Aided on average 10 students every hour specifically in College Algebra, Trigonometry, Pre-Calculus, Business Calculus, Calculus I, II, and III
- Applied positive reinforcement to students to help students master challenging material

Dixie Prep Program Assistant — June 2021-August 2021

- Mentored 25 high achieving middle school students in STEM outreach program
- Assisted with planning and coordinating day-to-day and special program activities
- Aided students with math skills, block coding, and technical writing

Undergraduate Research Presentations

- "A Wearable Closed-Loop System for In-Home Squat Training Using Real-Time Augmented Proprioceptive Feedback," Utah Conference on Undergraduate Research (April 2024)
- "A Step Towards Automated Aquaponics," Utah Tech Research Symposium (April 2022) and Utah Conference on Undergraduate Research (February 2022)
- “Closed-loop Wearable System with Augmented Proprioceptive Feedback for Precise in-home Squat Exercises,” Rocky Mountain Biomedical Symposium (April 2025) and Utah Conference on Undergraduate Research (February 2025)

Skills

- Software: Excel, MATLAB, Arduino IDE, Python, SOLIDWORKS, C++
- Fabrication: 3D Printing, Laser Cutting, Electrical Wiring, Soldering