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