MATTHEW GARCIA

Computer Engineer | Embedded Systems | IT Systems | Digital Design | Robotics

📞 832-420-4378   @ garciamatthew176@gmail.com   🔗 **Linkedin**   🔗 **Portfolio**   📍 Baytown, TX   ☆ https://github.com/Matthew-Garcia

SUMMARY

Senior Computer Engineering student with experience in IT, embedded systems, and robotics. Proficient in C/C++, Python, VHDL, and real-time design with expertise in hardware–software integration. Built robotics and IoT projects using ROS2, Gazebo, and embedded control, including a SCARA robot, LIDAR-based mobile robot, and NASA Lunabotics rover. Skilled in digital design, system integration, and troubleshooting across automation, AI, and IT infrastructure.

EXPERIENCE

Mentorship Intern – Systems & Aeronautical Engineering

FlightSafety International

📅 2021 - 2021   📍 Houston, TX

🔗 https://www.flightsafety.com/

FlightSafety International is a global leader in aviation training, specializing in simulation-based instruction, advanced flight simulators, and safety-focused engineering solutions for commercial, government, and military clients.

- Selected through the Puente Mentoring Program to shadow a Senior Systems Aeronautical Engineer with over 20 years experience.
- Gained exposure to flight systems, simulation tech, and aviation safety practices.
- Participated in engineering discussions, shadowed design tasks, and received career guidance.
- Assisted in designing navigation and flight control systems for a simulation craft.
- Built foundational skills in system integration, documentation, and QA in aerospace environments.

IT Specialist & Embedded Systems Technician

Pasadena Auto Service

📅 2021 - 2025   📍 Pasadena, TX

🔗 https://www.pasadenaautoservice.com/

Independent automotive repair company specializing in advanced diagnostics, electronic system repairs, and custom calibration solutions for a wide range of vehicles.

- Diagnosed and repaired vehicle electronics using diagnostic software and tools.
- Maintained and updated the company website to support customer outreach.
- Managed internal company's network: routers, wireless connectivity, and secure file sharing.
- Provided tech support for company systems and IT infrastructure to minimize downtime.
- Updated diagnostic tools for new vehicle models; applied embedded systems and CAN protocols.

IT Asset Support Technician

Lee College

📅 2019 - 2021   📍 Baytown, TX

🔗 https://www.lee.edu/

Public community college serving over 7,000 students annually, providing academic, technical, and workforce education across Southeast Texas.

- Managed 500+ IT assets using inventory systems across campus locations.
- Deployed desktops, laptops, and peripherals for labs and offices.
- Installed OS, academic software, and followed imaging standards.
- Coordinated deliveries and installations with Facilities and IT.
- Provided Tier 1 support for network and hardware issues.

SKILLS

Hardware & Digital Systems

Verilog, VHDL, Vivado, ModelSim, Quartus, FPGA Development, Digital Logic Design, RTL Design, Timing Analysis, Hardware Testing & Validation, Electronics, Telecommunications.

Embedded Systems & Programming

C/C++, C#, Python, ARM Assembly, Arduino, STM32, Embedded Linux, Intel FPGA Boards, Oscilloscopes, Logic Analyzers, Multimeters, UART/SPI/I2C Protocols, Circuit Design, FreeRTOS.

Robotics & Automation

ROS2, Gazebo, Rviz2, URDF/Xacro, Autonomous Navigation, Mapping, SLAM, Sensor Integration (LIDAR, IMUs, GPS), Robot Simulation.

Software & Tools

Linux Systems, Git, MATLAB, LabVIEW, Windows, MS Office, 3D Printing (Bambu Lab X1 Carbon), Docker, Shell Scripting, Virtual Machines, Data Structures, CAD, AutoDesk Inventor.

EDUCATION

Bachelor of Science in Computer Engineering

University of Houston Clear Lake

📅 2022 - 2025   📍 Houston, TX

Associate of Science in Pre-Engineering

Lee College

📅 2019 - 2021   📍 Baytown, TX

GPA
3.3 / 4.0

Associate of Science in General Studies

Lee College

📅 2019 - 2021   📍 Baytown, TX

REFERENCES

Shawn Way

- Director of Engineering, Empower Pharmacy.

- Chemical Engineer with 25+ years in pharmaceutical and biotechnology industries.

- Email: Shawnway@yahoo.com

- Phone: 832-403-0414

- Based in Pearland, TX

STRENGTHS

💬 **Oral and Written Communication**

✔️ **Reliable and Consistent**

📘 **Committed to Lifelong Learning**

🧍 **Team Building**

CERTIFICATION

Automation & Autonomy of Mobile Robots

University of Houston - Clear Lake (UHCL) | Awarded April 2025

MATTHEW GARCIA

COMPUTER ENGINEERING AT THE UNIVERSITY OF HOUSTON–CLEAR LAKE
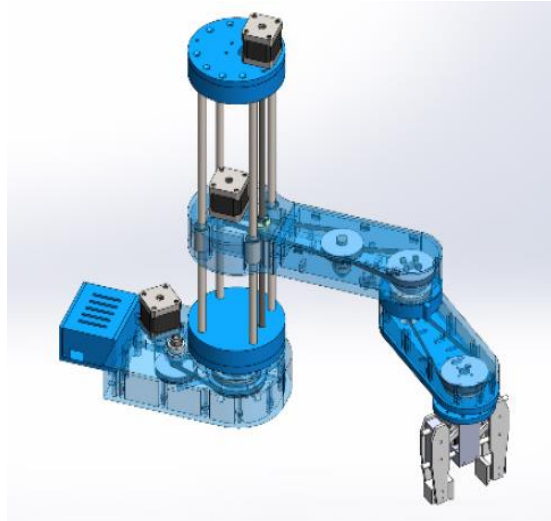
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in https://www.linkedin.com/in/matthew-garcia-165634195/

SCARA ROBOT - Research Project

What?
- Independently designed and built a functional **SCARA** robot for high-precision pick-and-place automation.
- Demonstrates key competencies in **embedded control and robot kinematics.**

How?
- Simulated motion and kinematics using **ROS2** and **Gazebo**. Designed using **Solidworks**.
- Developed **Python control** software with PID and **inverse kinematics.**
- Implemented **rotary encoder** feedback for closed-loop control.

Results
- Achieved accurate real-time **motion control**.
- Validated pick-and-place sequences in **simulation** and **hardware**.
- Established foundation for **robotics research**.

NASA Lunabotics Rover - UHCL 🦅
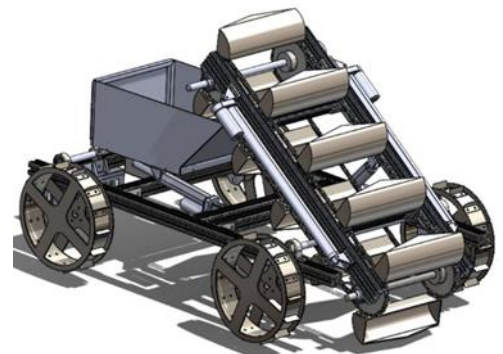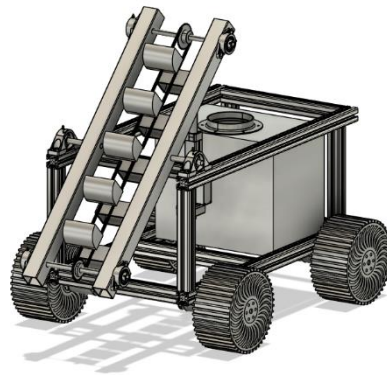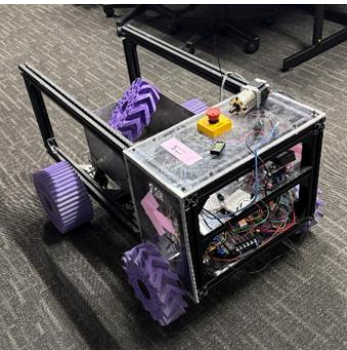
What?
- Designing the **NASA Lunabotics Rover**
- Focus on **excavation, transport, and autonomy.**
- Leading **Electrical & Software integration** (motor control, power, ROS2).

How?
- Redesigned **electrical system** (PWM, dual-battery, safety).
- Built **ROS2** stack for Jetson–ESP32 **autonomy**.

Results?
- Completed **new CAD rover design in fusion 360** and drafted electrical/software architecture.
- Ongoing **ROS2 integration** toward autonomous excavation and transport.

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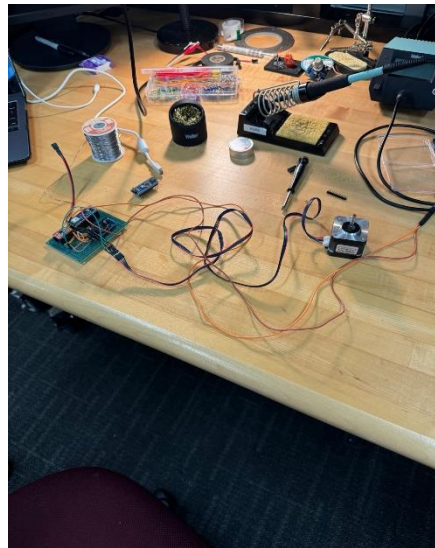matthew-garcia-165634195/

SMART BOWL SYSTEM – UHCL

What?
- Developed a **Bluetooth-controlled Smart Bowl** for automated pet feeding.
- Completed as an **Engineering Design & Project Management project** with team collaboration.

How?
- Built **3D-printed housing** and mechanical parts in **SolidWorks.**
- Programmed **Arduino microcontroller** for motor/sensor control.
- Developed **mobile apps** (Android/iOS) to schedule feedings via BLE.
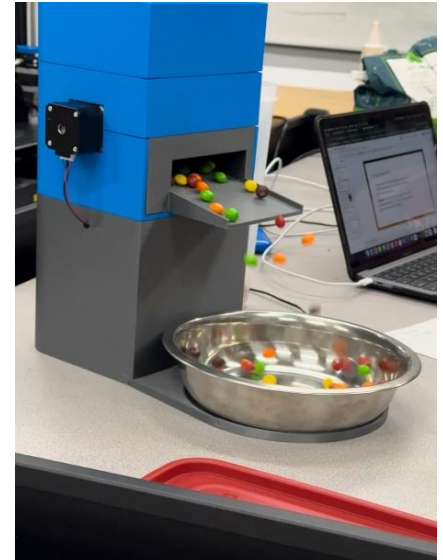
Results
- Supported up to **10 daily feedings** with customizable portions.
- Achieved **1.95% error margin**, below the 2.5% target.
- Delivered proof-of-concept with plans for **Wi-Fi control and scaling.**