

ISAAC R. VASQUEZ

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EDUCATION

Rochester Institute of Technology | Dean's List: Fall 2019 – Spring 2024

Master of Science in Manufacturing and Mechanical Systems Integration | GPA: 4.0

Bachelor of Science in Mechanical Engineering Technology | GPA: 3.86

Rochester, NY

May 2024

May 2024

2024 Elected College Graduate Delegate | Outstanding Undergraduate Scholar Award | 2022 RIT Honor's Elected College Representative
Lab Manager | Certified Six Sigma Greenbelt (DMAIC & DMADV) | RIT Honors Program | Awarded Three Merit-Based Scholarships

PROJECTS

Model Rockets with Telemetry and Recovery Systems (*Personal Project*)

April 2025 – Present

- Designed, built and launched a 44" reusable NAR L1-certified rocket (3" dia. & H195T SM); prototype for upcoming L2 vehicle.
- Integrating cameras, Arduino, Raspberry Pi, and LoRa modules for real-time remote flight logging and telemetry tracking.
- Simulate launch vehicles in OpenRocket, ANSYS, and SolidWorks to validate aerodynamics and structural integrity.
- Objective is to gain experience while beginning research into developing a small-scale liquid propulsion rocket engine.

Machine Vision Robotic Tool Grinding Work Cell (*Self-Chosen & Full Ownership*)

March 2024 – May 2024

- Developed a modular machine vision robotic tool grinding work cell, integrating an ABB CRB 15000 Co-bot, Cognex In-Sight 5100, and Allen Bradley L16ER-BB1B CompactLogix PLC using Agile methodology for rapid iteration.
- Leveraged ABB's Force Control license to **apply a consistent 3 N force** on a belt sander to achieve repeatable tool edge grinds.
- Integrated Cognex In-Sight Explorer software to automate the machine vision inspection process, **achieving angle detection $\pm 1^\circ$** .
- Deployed Ethernet/IP communication protocol to facilitate seamless data exchange and control between three external devices.

Medical Supplies Drone (*Senior Design Project*)

January 2023 – May 2023

- Utilized DMADV Six Sigma methodology to design, build, and test a drone prototype, **achieving 2 kg payload capacity**.
- Team of four engineered entire drone, including Arduino programming, electrical circuit design, 3D modeling, and related research.
- Owned development of drone arms and electrical casing, rapidly iterated based on FEA, tolerance stack-ups, and first principles.

EXPERIENCE

Outlier AI

August 2024 – July 2025

Physics Specialist

- Craft physics-based prompts designed to induce large language model errors.
- Upon failure, identify and correct the error(s), providing detailed explanations based on specific rubrics provided.

Lockheed Martin (*Rotary Missions Systems*)

May 2022 – August 2022

Materials and Process Engineer (Co-op)

Owego, NY

- Designed a universal baseplate across four HAAS CNCs—improving scheduling flexibility and overall production throughput.
- Developed a system to track and serialize over 100 CNC fixtures —**reduced setup times by 25%** (15 minutes).
- Designed a new parts tray for a UR Co-bot machine tending process—**increased throughput from 30 to 50 parts** (67% increase).

General Motors

June 2021 – December 2021

Manufacturing Quality Engineer (Co-op)

Rochester, NY

- Conducted two pilot studies using RED X methodology to assess effects of dimensional variation on fuel rail inlet braze success.
- Designed a guardrail fixture tailored for integration within a robotic weld work cell—**reduced operation scrap by over 50%**.
- Created a Power BI dashboard using SQL to display the true position of features built on a fuel rail, updated hourly for workers.
- Presented daily FTQ, scrap rates, and scrap costs to the fuel rail department, along with weekly and monthly reports to managers.

ACTIVITIES/EXTRA-CURRICULAR

RIT Launch Initiative (2021 – 2022) – Researched and designed an actuated gimbal system to enable combustion chamber steering.

RIT SAE Baja (2020 – 2021) – Machined various suspension jigs, welded brackets onto frame, and supported drive trials at Baja SAE races.

RIT Football Club (2019 – 2024) | **My Brother's Keeper (2018 – Present)** | **Society of Hispanic Professional Engineers (2021 – 2024)**

SKILLS

Software: SolidWorks (CAD & Flow Simulation) [Certified Associate], Creo, ABB RobotStudio (RAPID), ANSYS, MATLAB, Python, SQL, Arduino, LabVIEW, Studio 5000, OpenRocket, Automation Studio, Simio, In-Sight Explorer, Minitab, JMP, Microsoft Office

Hardware: ABB, FANUC, DAQs, microcontrollers and metrology tools (CMMs, tensiometer, etc.). Exposure to mill, lathe, MIG & TIG.

Languages: English (Native), Spanish (Near- Native), ASL (Accredited Immersion/Basic)