Brennan Reamer

brennan.reamer@gmail.com | (240) 432-1200 | linkedin.com/in/brennanreamer | github.com/brennanreamer

Education

Wentworth Institute of Technology, BS in Electromechanical Engineering — Aug 2019 – Aug 2023

- **GPA:** 3.9/4.0 (IDK)
- **Minor:** Applied Math, Computer Science
- **Honors:** Magna Cum Laude, Dean's list recipient every semester
- **Coursework:** Parallel Computer Architecture, Machine Learning, Object-Oriented Programming
- **Extracurriculars:** Wentworth Engineering Honors Society Member, Wentworth Men's Soccer Team player

Experience

North America Tulip Experience Center Lead, Tulip Interfaces – Somerville, MA — Aug 2023 – Present

- Developed an HMI of the Future, integrating the Tulip platform directly into a Rockwell Automation FTOptix application running on an Allen-Bradley HMI, *Video*
- Led development of several Pop-up Factories and demos to showcase the Tulip software platform at international events
- Regularly give tours of our Experience Center both internally for enablement and externally with potential customers, *Virtual Tour*
- Led a complete rework of our Experience Center, creating a process-driven demo replicating a real factory. Integrated 15 Partners within our Experience Center, including a UNS, MQTT Broker, and Historian, as well as hardware devices such as Banner Engineering's Pick-To-Light devices over Modbus, a Kolver Torque Driver using Torque Open Protocol, and a ProGlove MARK Display over Serial.
- Mentored 2 co-ops
- Manufactured a custom PCBA Gizmo Clock for use as part of our Pop-up Factory at international events

Applications Engineering Co-op, Tulip Interfaces – Somerville, MA — Sep 2022 – Aug 2023

- Responsible for daily audit and debugging of state-of-the-art Experience Center
- Assisted Marketing team in production, setup, and day-of maintenance of Tulip Events and tradeshow installations
- Created apps and experiences to be presented at international tradeshows and partner sites
- Created integrations with API and data sources such as Salesforce, Slack, PostgreSQL, and Google Transit, Translate, and Calendar
- Completed Hardware R&D projects with methods such as analog current measurement with current clamps to gather machine monitoring metrics
- Created integrations between Tulip and modern industry equipment like Kolver torque drivers, ZeroKey Quantum RTLS, ProGlove Serial/TTL Gateways, Cognex MQTT bridges, and AWS Lookout for Vision
- Trained and deployed an AI vision model for object detection using LandingAI's LandingLens. Integrated the vision model into an embedded JS widget within a Tulip app.
- Used JavaScript to develop an AI Chatbot trained on Tulip documentation that can respond to questions about the Tulip platform. Integrated the chatbot onto every Tulip app within the Tulip Experience Center.

R&D Design Engineer Co-op, Barnes – Peabody, MA — Jan 2022 – Apr 2022

- Conducted Thermocouple testing on a Synventive Hot Runner Injection Molding System
- Developed an energy harvesting system for use within the injection molding process to power small electronics.
- Designed two new Dynamic Feed plastic flow methods in SolidWorks to be used as images in a patent application.
- Collaborated in an Agile software testing environment, training new team members and utilizing project management tools, such as Kanban boards and Jira software.
- Developed automated UI tests using Cypress in JavaScript for continuous software verification.

Projects

Autonomous Meal Delivery Robot for Medical Facilities, *Senior Design Project* Jan 2023 – Aug 2023

- Developed an autonomous robot with a team of four to deliver meals to patients in a hospital setting, using ROS, Ubuntu, Nvidia Jetson Nano, LiDAR, and Ultrasonic sensors.
- Led the development of the robot's autonomous navigation and path planning system, utilizing Machine Learning in ROS to process LiDAR data and make real-time decisions on the best route for the robot to take.
- Designed and implemented a custom algorithm for the robot's path planning, taking into account factors such as obstacle avoidance, patient privacy, and efficient delivery routes.
- Collaborated closely with team members responsible for CAD design, motor control, and user interface design to integrate the autonomous navigation system into the overall robot functionality.
- Tools Used: C++, LiDAR mapping, Nvidia Jetson Nano microcontroller, Robot Operating System (ROS)

3D Printer

- Assembled a FDM Cartesian 3D Printer, wiring and programming the motherboard with Marlin (RepRap) firmware written in C/C++, interfacing the printer with a Raspberry Pi 3B+ acting as a headless server for remote printing and monitoring
- Tools Used: C/C++, Linux

Lead Detection Device for Running Water Sep 2018 – May 2019

- Programmed a Raspberry Pi using Python to detect lead in running water as small as 15 parts-per-million and print if the water is safe to drink
- Interfaced a Screen-Printed Electrode, a Gas-Sensor Development Module, and an LCD display to the Raspberry Pi using I2C serial connections
- Conducted as a year-long project in a team of 2 with 3 presentations to a panel of 8 professional engineers throughout the process
- Tools Used: Python, Linux, Raspberry Pi

Technologies

Languages: C++, C, JavaScript, SQL, Python, LaTeX, Matlab, Cypress, R

Protocols: Modbus, MQTT, OPC-UA, Serial

Technologies: Tulip, AWS, Node-RED, HighByte, HiveMQ, Rockwell Automation's FactoryTalk Optix, Salesforce, LandingAI, Jira

Computer-Aided Design: Autodesk Fusion 360, Solidworks, NI Multisim, Simulink