ISAAC INGRAM

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IsaacIngram

WORK EXPERIENCE

Co-Op, Software Engineering | Eoptic — May 2025 - Current

- Architect and develop various embedded systems to meet customer requirements, using ESP32s, nRF52s, Arduinos, and other microcontrollers
- Design custom PCBs to handle domain-specific applications, and do assembly and bring up on other PCBs to verify that they work as expected
- Integrate embedded devices with message brokers to make them available to other apps and systems, and to integrate IoT functionality

ESP-IDF | ROS | KiCAD | MQTT | Nordic Connect SDK | NVIDIA Jetson

Co-Op, Application Software | Collins Aerospace — May 2023 - April 2025

- Lead creation of a customer-facing desktop app for configuring avionics hardware
- Lead development of an automated CI/CD tool for finding library compatibility issues within the company-wide codebase, and work with the tools team to delegate future improvements
- Create various scripts and apps to automate tasks and check requirements, significantly reducing development time

Flask | Python | Selenium | C | Requirements Management

Lead Software Engineer | MakePlus — September 2023 - January 2024

- Write embedded motor control software for custom lighting fixtures in a music studio
- Conceive a secure, mesh wireless network so any number of fixtures can receive commands
- Remotely manage software development, collaborating with mechanical and electrical teams to meet customer requirements and deadlines

ESP-NOW | ESP32 | Qt | Linux

PROJECTS

Bits 'n Bytes | ComputerScienceHouse/bits-n-bytes-embedded

- Develop an embedded system, connecting 10+ microcontrollers and aggregating data from 30+ sensors in real time via UART and a wireless mesh network
- Train a custom YOLO model and create a computer vision pipeline for detecting 7 different types of snacks in a robust set of environments
- Securely interface actuators and sensors with decision-making devices, such as a NVIDIA Jetson, the on-cabinet UI, and a remotely available website

C | ESP-IDF | FreeRTOS | CV/YOLO | Embedded Linux | NVIDIA Jetson

Computer Science Mouse | IsaacIngram/computer-science-mouse

- Create a highly efficient embedded system for sharing the status of 10+ connected mouse traps to a local dashboard over a secure mesh network
- Integrate a serverless AWS backend to reduce cost and enable communication with IoT devices when they connect to the internet
- Work with Twilio and AWS to dispatch status updates to clients based on trap status and battery level, including sending a bulk queue of messages if traps were previously offline

C | ESP-IDF | AWS | Boto3 | Twilio | Mesh Networking

EDUCATION

BS Computer Science Rochester Institute of Technology

May 2026 — Rochester, NY

Coursework in Data Management, Algorithms, Artificial Intelligence, Physics, and Computer Vision

LANGUAGES

C | Python | Java | C++ | Matlab

TECHNOLOGIES

ESP-IDF | Qt | Linux | Git | SVN | FreeRTOS | KiCAD | nRF SDK | Jama | DOORS | Coverity

ACTIVITIES

Computer Science House
csh.rit.edu

- President — June 2025 - Present
  - Oversee house operations, running 3+ weekly meetings for over 65 active members
  - Secure donations from companies and alumni members
  - to and communicate with companies to facilitate company floor visits to benefit our members
- Member — August 2022 - Present
  - Living-learning community focused on sharing technical skills and knowledge
  - Empower and collaborate with other members on self-driven projects

Sigma Chi | Lambda Kappa
sigmachirit.com

- Webmaster — April 2024 - May 2025
  - Maintain chapter website, mailing lists, and google workspace for hundreds of actives and alumni
- Brother — March 2023 - Present
  - Cultivate principles of friendship, justice, and learning with brothers
  - Host and attend philanthropy events to raise over $40,000 for the Huntsman Cancer Institute