

Ilya Oleynik

ioleynik.com | oliynyk.ilya413@gmail.com | 631)-530-4415

SUMMARY

Computer Engineering undergraduate at the University at Buffalo with strong proficiency in C/C++, Python, and embedded development. Experienced in flight software engineering, including architectural trade studies, driver implementation, and analyzing complex hardware documentation. Skilled in writing clear technical reports for high reliability systems and translating deep technical concepts into accessible formats. Practical experience working on STM32, ARM Cortex-M7 SAM V71, and ESP32 platforms. Proven leadership experience in research environments.

US Citizen.

EDUCATION

University at Buffalo

Buffalo, NY

School of Engineering and Applied Sciences

Expected May 2027

B.S. in Computer Engineering

Minor in Electrical Engineering

Coursework: Machine Learning, Microcontrollers, Data Structures, Systems Programming, Embedded Systems

RESEARCH LABORATORY

UB Nanosatellite Laboratory (UBNL)

Flight Software Lead

Aug 2025 - Present

- Author core Flight System (cFS) applications in C.
- Direct flight software development for the PIP-07 satellite, contracted by the Air Force Research Laboratory (AFRL) University Nanosatellite Program.
- Lead architectural trade studies to select critical software and hardware components.
- Maintain hands-on development, solving complex programming issues.
- Standardize documentation and development workflows, easing the onboarding process for new team members.

ADDITIONAL EXTRACURRICULARS

Students for the Exploration and Development of Space (SEDS)

Embedded Software Member

- Analyzed PCB schematics and chip documentation to ensure hardware-software compatibility.
- Developed STM32 drivers for custom-fabricated PCBs for high-altitude rocketry.
- Implemented communication protocols including I2C, CAN, and UART for sensor data acquisition.

PROJECTS

Evolutionary Machine Learning Algorithm on Stock Market

- Designed a genetic algorithm in Python to optimize stock portfolio performance, prioritizing the Sharpe Ratio through generational model evolution.
- Integrated Yahoo Finance API data to train models on historical ETF performance.
- Developed a custom front-end interface using HTML and CSS for real-time visualization of model generations.

Edge AI Security Camera & Cloud Alerting

- Engineered a Raspberry Pi 5 security camera running YOLOv4-tiny for local and real time object detection.
- Optimized OpenCV DNN inference in Python to extract bounding boxes without hardware thermal throttling.
- Reduced bandwidth and latency by processing computer vision onboard instead of always streaming video to the cloud.

ADDITIONAL

Languages: C, C++, Python, Java, Arm Assembly

Embedded: STM32, ESP32, ARM Cortex, Raspberry Pi, RTEMS, FreeRTOS

Tools & Protocols: Git, Docker, NASA cFS, Linux, GDB, I2C, SPI, UART, CAN

Hardware: Oscilloscope, Logic Analyzer, Multisim, LTSpice, Soldering