

## AMRAL BAKSH

[amralbak@buffalo.edu](mailto:amralbak@buffalo.edu) | [github.com/amralbak](https://github.com/amralbak) | [linkedin.com/in/amralbaksh16](https://linkedin.com/in/amralbaksh16)

### EDUCATION

---

#### **University at Buffalo**

Buffalo, NY

**Bachelor of Science:** Computer Science, Cybersecurity Minor

May 2027

**Relevant Coursework:** Data Structures, Operating Systems, Computer Security, Version Control, Computer Architecture

**Awards:** Dean's List (Fall 2023 and Spring 2024)

### PROFESSIONAL EXPERIENCE & INVOLVEMENT

---

#### **SUNY Buffalo Biomedical Engineering Department** | *Research Assistant* | Buffalo, NY      May 2025 - Aug 2025

- Integration of XIMEA MU051CG-SY-TC camera with OCTSharp, a C#-based optical coherence tomography (OCT) imaging framework
- Worked with XIMEA camera drivers and SDK into the OCTSharp framework to enable real-time GPU-accelerated OCT imaging.
- Configured camera, frame grabber, and DAQ (Data Acquisition) systems with a focus on concurrency and performance optimization within OCTSharp's multi-threaded CUDA (Compute Unified Device Architecture) for high-speed image acquisition.

#### **SUNY Buffalo CSE Department** | *Project Member* | Buffalo, NY

Aug 2025 - Present 2025

- Collaborated with team members to implement device-to-device authentication and secure communication protocols with robust key management for a distributed encrypted storage system using public-key cryptography.
- Designed bundle setup logic with public/private key pairs and authenticated Diffie–Hellman exchanges for inter-device trust and encryption.
- Integrated NTFY (publish/subscribe) messaging and Shamir's Secret Sharing to enable secure, post-quantum–resilient key share transmission.

#### **SUNY Buffalo Campus Living** | *Residential Assistant/ Conference Host* | Buffalo, NY

Aug 2024 - Present

- Supervise a residential community of approximately 28 students, fostering a safe and inclusive living environment
- Mediate conflicts between residents, encouraging open communication and respect.
- Collaborate with campus staff to promote student well-being and enhance the residential experience.
- Deliver high quality guest support by handling check-ins, lockouts and emergency responses

### SKILLS AND CERTIFICATIONS

---

**Programming Languages:** C, Rust, Python, Java, C#

**Systems:** CUDA, Multithreading, Memory Management

**Security:** Diffie-Hellman, Public-Key Cryptography, Secret Sharing

**Web:** HTML, CSS, JavaScript

**Certifications:** CPR and First Aid | American Heart Association

### PROJECTS

---

**Conway's Game of Life Implementation-** Developed Conway's Game of Life in C with efficient grid updates

**Instant Messenger Application** – Built a C-based instant messaging app with custom packet encoding and decoding

**Multi-pool Memory Allocator** - C implementation replacing malloc () with custom memory management to reduce fragmentation and improve allocation efficiency