Kelly Goss

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https://github.com/khgoss https://www.linkedin.com/in/kelly-goss-h66/

Education

University of Michigan   **Ann Arbor, MI**

Bachelor of Science in Computer Science   May 2025

- GPA: 3.94
- Courses: Computer Networking, GPU Programming, Computer Security, Operating Systems, Data Structures and Algorithms, Computer Organization, Statistics, Linear Algebra
- Awards: National Merit Finalist (2022), University Honors (2022, 2023), William J. Branstrom Freshman Prize (2023), UROP Research Blue Ribbon Award (2023), James B. Angell Award (2024)

Research and Software Experience

University of Michigan Ye Lab   **Ann Arbor, MI**

Undergraduate Research Assistant, Software Developer   September 2022-Present

- Developed LabGym 2.0 with a team of neurobiology researchers, an open-source multi-individual-tracking software that uses machine learning to automate behavioral analysis for biological researchers by performing the end-to-end classification and quantification of user-defined animal and cell behaviors.
- Wrote a Python data mining module and GUI that automates statistical analysis of behavioral video data, identifies significant differences among groups, and visualizes datasets across categories. Leveraged cluster computing/HPC, convolutional neural networks, and machine vision with TensorFlow and OpenCV to implement background removal, generate object contours, and enhance animal tracking and behavioral identification.
- First name author on paper to be published in Nature Communications.

Job Experience

TotalCAE   **Plymouth, MI**

Software Development Intern   May 2024-August 2024

- Engineered and optimized software and web applications for TotalCAE, a leader in High-Performance Computing (HPC) solutions, to integrate both on-premises and cloud-based HPC into client workflows.
- Developed thread-safe cache of server responses to reduce endpoint response times by over 99%.
- Added new features such as DSLsStat license parsing to enable accurate interpretation and management of license data, which streamlined compliance and operational efficiency for HPC solutions.

University of Michigan   **Ann Arbor, MI**

Operating Systems Instructional Assistant   August 2024-Present

- Support students in understanding complex operating systems concepts such as concurrency, assist lab sessions, grade projects, and provide one-on-one office hours assistance to enhance students' understanding, educational experience, and academic performance.

Project Experience

Multi-threaded Network File Server

- Developed a multi-threaded network file server, enabling client interactions via network messages, implementing hierarchical file systems, socket programming, and client-server communication, while employing fine-grained locking to manage concurrency and ensure robust performance.

Application Security

- Exploited control-flow hijacking vulnerabilities to bypass common defenses and craft buffer-overflow attacks.

Skills

Coding Languages: C++, C, Python, Java, Javascript, SQL, ReactJS, NodeJS

Skills: AWS, Azure, Linux, HPC, Version Control/Git, Windows OS, Jupyter Notebooks, Docker, LaTeX, MS Office

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