

# Jalen Francis

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## Education

The Ohio State University Columbus, OH  
**Honors B.S. in Computer Science & Engineering, B.S. Mathematics** *Aug. 2023 – Dec. 2026*

- **GPA: 3.94/4.00**; Member of **Tau Beta Pi** Engineering Honor Society.
- **Fall 2026 Coursework:** Computer Vision, Neural Networks, Capstone: Knowledge Systems.
- **Completed Graduate Coursework:** Machine Learning, Infinite Linear Mathematics, Finite Linear Mathematics, Mathematical Logic.
- **Technical Coursework:** Honors Analysis I-II, Systems Programming, Operating Systems, Data Structures & Algorithms, Abstract Algebra I-II, Electronics, Computing Ethics.
- **Leadership: Quantathon Coordinator @ SIAM; Technical Committee @ AI Club.**

## Experience

JPMorgan Chase & Co. Columbus, OH  
**Incoming Software Engineer Intern** *Jun. 2026 – Aug. 2026*

- Selected for the Software Engineering Program (SEP).

The Ohio State University, College of Engineering Columbus, OH  
**Undergraduate Teaching Assistant (Lead)** *Aug. 2024 – Present*

- **Software Team Lead:** Own and evolve the full robotics course framework, delivering end-to-end infrastructure used across firmware, tooling, and competition operations.
- Built a high-level **C++ library** for an **ESP32/Arduino** stack and led camera calibration plus communication-protocol improvements to make autonomous behavior more reliable in production course use.
- Modernized the stack through **.NET 10 migration** and **CI/CD automation** while mentoring **200+ students** in Java, C/C++, and MATLAB with emphasis on efficient, rigorous engineering practice.

Clubble (Startup) Remote / Columbus, OH  
**Founder & Lead Software Engineer** *Apr. 2025 – Present*

- Launched cross-platform social app to 3 universities; managed full-stack lifecycle from design to App Store/Google Play release.
- Architected scalable backend using **AWS Lambda, Firebase, and Cloudflare** with HLS streaming via **Wasabi**.
- Integrated **Stripe API** for secure payments and engineered an automated QR-based ticket verification system.
- Reduced app latency and memory leaks by implementing **LRU caching** and custom memory protocols.

Kroger Great Lakes Regional Distribution Center Delaware, OH  
**Process Automation Engineering Intern** *May 2025 – Aug. 2025*

- Built ML pipeline for delivery optimization across 233 stores using **PyTorch** and **simulated annealing**.
- Developed **LSTM networks** for SKU forecasting and order splitting prediction with **95% accuracy**.
- Reduced dock congestion by **50%** via **genetic algorithm** optimization, significantly increasing facility throughput.
- Deployed a **Flask** dashboard for real-time facility monitoring and automated data-driven decision making.

## Projects & Competitions (*7x Hackathon Finalist*)

**Bitwarden iOS: mTLS Client Certificate Support** | Swift, URLSession, Bitwarden SDK Apr. 2026

- Merged major feature PR into **Bitwarden iOS** open-source app, shipped in **v2026.4.1** to millions of users.
- Implemented full **mTLS** client certificate authentication — PKCS#12 import, secure storage, and URLSession integration — enabling self-hosted enterprise deployments requiring mutual TLS.

**Empirica: Autonomous Research Assistant** | FastAPI, React, Three.js, scispaCy, Claude 3.5 Oct. 2025

- Received **Honorable Mention at CalHacks 12.0** for automating biomedical research workflows.
- Integrated *PubMed* with *scispaCy* for entity extraction and RAG-based hypothesis generation.
- Built interactive 2D/3D knowledge graphs with *Three.js* and citation-backed semantic search.

## Technical Skills

**Languages:** Java, Python, C/C++, SQL, JavaScript, HTML/CSS, MATLAB, x86-64

**Frameworks & Tools:** JUnit, Qt, TensorFlow, OpenCV, React, Git, React Native

**Concepts:** Machine Learning, Neural Networks, Blockchain, Parallel Processing