

Patrick “Pat” Walsh

[LinkedIn](#) and [GitHub](#)

Software engineer and founder with expertise in **embedded systems**, **GPU-accelerated algorithms**, **distributed systems**, and **AI**. Founded and led **CarnotX**, conducting dozens of user interviews, building prototypes, running PMF tests, and presenting to 10+ venture capital firms. Experienced in developing **production-ready software** across multiple domains, including **building management systems**, **computer vision**, and social platforms, while **leading agile teams** and **driving technical strategy** in both startups and enterprise environments.

Skills

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- Machine Learning
 - Presentation
 - Extraction, Transformation, Load (ETL)
 - C++, Python, MATLAB
 - GPU Programming with CUDA
 - UNIX/Linux
 - Clustering Algorithms
 - Agile Methodologies/Scrum
 - Apache Arrow/Spark
 - Radio Frequency (RF) Engineering

Education

University of Illinois – Urbana Champaign

Expected Spring 2027

- Master’s of Computer Science starting Fall 2025, focus on **Autonomy** and **Machine Learning**

University of Massachusetts Amherst

May 2024

- B.S., Computer Engineering, Varsity Track and Field Sprinter

Awards

3x BAE Systems IMPACT Award Recipient

Throughout tenure

- exemplified program values on tight schedule and had strong impact on the rest of the program

BAE Systems Trusted, Innovative, Bold (TIB) Award

Fall 2024

- Most valuable teammate at Engineering Leadership Development Conference

Honorable Mention for Faculty Vote on Senior Design Project

Spring 2024

- University of Massachusetts – Amherst award chosen for most successful and difficult project between 32 teams

Best Hardware Hack at HackUMass X

Fall 2022

- Best hardware design and implementation for project over 36-hour hackathon

Work Experience

Co-Founder, Chief Technology Officer // CarnotX

December 2025-Present

- Founded an early-stage smart buildings startup focused on improving **BAS and HVAC data quality** using **machine learning**
- Integrate from messaging protocols and **Niagara/BACnet** data to **machine learning insights** that **save 10% on energy costs**
- Conducted dozens of direct **user interviews** with users to identify systemic data and deployment failures in real-world buildings.
- Built and iterated on early **technical prototypes** for ingesting, structuring, and analyzing building automation data
- **Led 10+ pitch meetings** with venture capital firms, refining problem framing, product direction, and **go-to-market strategy**

Software Engineer // FAST Labs at BAE Systems

June 2024-December 2025

- Main architect of multiple software baselines and algorithms, utilized by multiple teams
- Own major aspects of design as both design engineer and forward deployed engineer, working with real systems on the edge
- Implement data stream clustering algorithms and **ML** algorithms that increase performance of older algorithms by 90+%
- Develop **distributed processes** across multiple systems using **Docker**, **Docker Compose**, and **Docker Swarm**

Technical Intern // FAST Labs at BAE Systems

June-2023-June 2024

- Use **CUDA**, **MATLAB** to design and make use of proprietary algorithms to interface with RF data
- Assist with development of patented algorithms that made use of NVIDIA’s CUDA architecture for signal processing

Project Experience

Artemis // Technical Lead

May 2024-April 2025

- Implement **AI and Computer Vision** algorithms to create personalized feedback for individuals based on proprietary **ML** and **signal processing** algorithms to increase performance and decrease injury for professional athletes
- Use scikit-learn, numpy, pandas, Firebase, React Native, and YOLO to create a custom application suite for computer vision
- Manage and implement multiple **Product Market Fit (PMF) tests** to become better suited for Artemis’ target consumer