

# Vivek Jagadeesh

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## Objective

Seeking an internship in Operating Systems or Cybersecurity that leverages my experience in kernel development, system hardening, and agile development.

## Education

**Worcester Polytechnic Institute (WPI), Worcester, MA**

Master of Science in Computer Science, GPA: 4.0/4.0

Graduation Dec 2026

Bachelor of Science in Computer Science – Concentration in Cybersecurity, GPA: 3.96/4.0

Graduation May 2026

## Relevant Courses:

Operating Systems, Computer Networks Security, Cryptography and Data Security, Machine Organization and Assembly Language, Design and Analysis of Algorithms, Software Engineering, Introduction to Artificial Intelligence.

## Skills

**Programming Languages:** C, C++, Python, Java, TypeScript, JavaScript, SQL

**Emulation & Development Tools:** Linux, Docker, QEMU, GitHub, VirtualBox

**Databases & Cloud:** PostgreSQL, Oracle, SQLite, AWS (EC2, RDS, S3, DynamoDB, Lambda), Azure (Cosmos DB)

**Frameworks & Libraries:** React.js, Next.js, Node.js, Express.js, Flask, GraphQL, Tailwind CSS, Prisma ORM, Auth0

**AI/ML Technologies:** AWS Bedrock, OpenSearch, scikit-learn, Retrieval Augmented Generation (RAG), Agent Flows

**Areas of Interest:** Operating Systems Kernel Development, System Hardening, Memory Safety, Distributed Systems

## Work Experience

**Student Assistant, WPI Department of Computer Science, Worcester MA**

May 2024 – Present

- Coached 6 agile teams (4 students each) in building full-stack web applications using Flask, Docker, and AWS.
- Led recitation sessions on cloud deployment using AWS EC2, Docker, and AWS RDS.
- Facilitated weekly sprint demonstrations and worked with the supervising instructor to assess team progress.
- Provided actionable feedback on more than 30 student projects each week, highlighting areas of improvement.
- Guided teams in implementing agile ceremonies (retrospectives, daily scrums, and backlog refinement).

**Software Engineering Intern, Waters Corporation, Milford, MA**

June 2025 – Aug 2025

- Engineered and deployed a Retrieval Augmented Generation (RAG) chatbot to streamline order support.
- Developed secure user authentication and data access flows using AWS Cognito and token verification.
- Created serverless architecture using 7 AWS Lambda Functions for response generation and document retrieval.
- Integrated AWS Nova Lite with an OpenSearch knowledge base to enable context-aware response generation.
- Built a WebSocket layer to enable real-time communication between the UI and Lambda functions.
- Implemented an AI Agent Flow to allow customers to re-order previous purchases directly from the chatbot.
- Presented technical demonstrations to the senior leadership team and global stakeholders.

## Project Experience

**Secure Memory Allocator for Linux, Major Qualifying Project**

Aug 2025 – Present

- Developing a secure memory allocator for the Linux Kernel using ARM Memory Tagging Extension (MTE).
- Deployed a custom Linux Kernel with the hardened allocator, 3 system calls, and a kernel module to the Pixel 9A.
- Analyzed DirtyCred and related Linux privilege-escalation vulnerabilities to develop countermeasures.
- Conducted profiling and performance analysis to measure runtime overhead in comparison to existing allocators.
- Created test cases and benchmarks using Unity and KUnit to evaluate the allocator performance and security.
- Testing allocator stability and security using QEMU, Docker, and AOSP.

**MLB Classifier, Personal Project**

July 2024 – Aug 2024

- Developed full-stack MLB Pitch Classifier using Next.js, Python, Flask, sci-kit learn, and PostgreSQL.
- Trained a neural network to classify MLB pitches using advanced metrics and achieved 92% model accuracy.
- Utilized Python Flask to create RESTful APIs to connect the machine learning model to the React.js frontend.
- Built a CI/CD pipeline to automatically build Docker containers upon a push to the project GitHub repository.

**An application for Brigham and Women's Hospital, CS 3733 – Software Engineering**

Mar 2024 – May 2024

- Led full-stack development using TypeScript, Express.js, Prisma ORM, Auth0, AWS EC2, and AWS RDS.
- Served as an Assistant Lead Developer and made 127 contributions and 8,500 additions across the project.
- Integrated Auth0 security features including RBAC, auto account creation and deletion, and protected APIs.
- Led scrum meetings, retrospectives, technology stack presentations, and two application demonstrations.
- Maintained the PostgreSQL database schema, Express.js REST APIs, and map editor user interface.
- Created and implemented entity-relationship and UML use case diagrams to simplify architectural decisions.