

# Tyler Rafferty

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## EDUCATION

### University of Massachusetts Amherst

Amherst, MA

*Bachelor of Science in Computer Science, Minor in Mathematics*

*Sept. 2024 – Expected May 2027*

**GPA:** 3.772 / 4.0

**Honors & Activities:** MassAI Club, HackUMass 2024, Dean's List (Fall 2024 & Spring 2025)

**Relevant Coursework:** Algorithms, Database Management, Introduction to Computation, Linear Algebra, Programming Methodology

### University of Massachusetts Lowell

Lowell, MA

*Bachelor of Science in Computer Science*

*Sept. 2023 – May 2024*

**GPA:** 4.0 / 4.0

**Honors & Activities:** Chancellor's List (Fall 2023 & Spring 2024), Honors Student, Cyber Security Club Treasurer, Collegiate Cyber Defense Team

## EXPERIENCE

### Software Quality Engineer Intern

June 2025 – August 2025

*Federal Reserve Bank of Boston*

*Boston, MA*

- Developed and deployed a full-stack feature (Next.js + Spring Boot) for a testing tool used by 100+ financial institutions, enabling randomized input fields that enhanced partner testing depth and reliability
- Engineered unit and integration test suites (Jest, JUnit) to validate new functionality, increasing coverage for the feature and improving system confidence in production
- Collaborated with product owners and senior engineers in a distributed agile environment, refining requirements and delivering functionality aligned with FedNow's large-scale testing strategy

### Full-Stack Software Engineer

April 2025 – Current

*UMass Work Force Management*

*Amherst, MA*

- Contributing to a project led by a graduate student in partnership with UMass Dining to build a scheduling platform for dining hall staff
- Developing full-stack features in React, Go, and SQL, including shift management and access control
- Applying Agile methods with Jira, CI/CD, and Git to ship and maintain reliable code

### Cybersecurity Intern

June 2024 – August 2024

*South Shore Hospital*

*South Weymouth, MA*

- Engaged in security operations using enterprise tools and industry-standard frameworks, applying concepts through formal and hands-on training opportunities
- Played a crucial part in restoring South Shore Hospital during the 2024 CrowdStrike outage

## PROJECTS

### PhotoCapsule | *Next.js, Golang, PostgreSQL*

PhotoCapsule GitHub

- Designed and built a full-stack web application for creating secure photo time capsules using Next.js, Tailwind CSS, Go, and PostgreSQL
- Implemented user authentication with JWT and built RESTful APIs to support image uploads, capsule creation, and a soft-delete trash system
- Containerized the application with Docker, configured a scalable backend architecture using GORM ORM and secure cloud storage practices, and implemented CI/CD pipelines with GitHub Actions to automate testing, building, and deployment

### CloudWatch | *React, Java (Spring Boot), Docker, PostgreSQL*

CloudWatch GitHub

- Built a lightweight monitoring tool to ping and track the availability of cloud infrastructure services across multiple regions
- Developed RESTful APIs with Spring Boot in Java to perform periodic health checks and store uptime metrics in PostgreSQL
- Implemented a React frontend to visualize service availability and uptime history in real time
- Containerized the application with Docker for easy deployment and scalability across environments

### 2048 AI | *Python, PyTorch*

2048 AI GitHub

- Developed a reinforcement learning agent using Deep Q-Learning to play the game 2048, optimizing decision-making through experience replay and neural networks
- Designed and fine-tuned reward functions to enhance strategic tile merging, leading to improved game performance and higher tile scores

## TECHNICAL SKILLS

**Languages:** JavaScript, Golang, Python, Java, HTML, CSS, SQL, NoSQL

**Frameworks & Libraries:** React, Node.js, Express, Spring Boot

**Cloud & Tools:** AWS (EC2), MongoDB Atlas, Docker, CI/CD, Git, GitHub, LaTeX, Nginx, Figma, Linux

**Concepts & Skills:** RESTful API development, Microservices, Agile Development