

Patrick Negus

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EDUCATION

University of Massachusetts Amherst

Graduated January 2024

Bachelor of Science in Computer Science, Minor in Mathematics; GPA: 3.87

EXPERIENCE

Application Development Intern

Summer 2023

Centene Corporation

- Instrumented a .NET Kafka consumer to monitor performance and errors using OpenTelemetry
- Developed a set of dashboards in Dynatrace to visualize the performance of the consumer
- Explored proof-of-concept workflows in Gitlab CI/CD in order to increase efficiency and ease-of-development for developers

Application Development Intern

Summer 2022

Centene Corporation

- Developed a tracking feature in a Go backend that queries shipping companies for tracking information
- Parsed the data for display in an Angular frontend
- Implemented a mock service to allow developers to test the backend without using the production API

PROJECTS

Weekly Budget Tracker | *React Native, React-Query*

- Personal budgeting app built in React Native designed to track purchases and remaining budget on a weekly basis
- Uses AsyncStorage and React-Query to persist data and manage state
- Generates a weekly report of purchases and displays a graph of weekly spending

Gauntlet Run | *Unity, C#*

- Procedurally generated 3D maze game using constraint satisfaction with a disappearing maze
- Player navigates various obstacles and enemies to reach the end of the maze
- Enemies use A* pathfinding to chase the player and avoid obstacles
- Uses the Bellman-Ford algorithm for path generation

Kaggle Titanic Disaster Challenge | *Python, numpy, sklearn, pandas*

- Applied data cleaning, feature engineering, and feature selection skills to the Kaggle Titanic dataset
- Achieved 84% accuracy using k-folds cross-validation and a random forest classifier

p7zip-zstd Vulnerability Analysis | *C++, AFL++, CodeQL, Joern*

- Performed a vulnerability analysis on the p7zip-zstd fork of the p7zip project
- Used AFL++ with an address sanitizer to fuzz the project for vulnerabilities and found multiple segmentation faults
- Used the CodeQL and Joern static analysis tools to query for common vulnerabilities in malloc() and free() calls

OTHER EXPERIENCE

Office Assistant

Fall 2020 – December 2023

UMass University Health Services

- Managed sensitive client health info and ensured client confidentiality in a public-facing role
- Assisted in the distribution and collection of COVID-19 test kits and data for the university

TECHNICAL SKILLS

Languages: Python, C#, Java, JavaScript, TypeScript, C, C++, HTML, CSS, SQL

Frameworks: React, React Native, NextJS, .NET, JavaFX

Libraries: numpy, matplotlib, pandas, sklearn

Technologies: GitLab CI/CD, GitHub Actions, Docker, Kubernetes, AWS, Dynatrace, OpenTelemetry, Tailwind, Kafka

Methodologies: Agile, Scrum (Jira, Confluence)

Tools: Vim, VSCode, Git, Bash, pwndbg, gdb, Ghidra

Platforms: Linux, Windows