

Devin Bowler

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EDUCATION

Bachelors of Science in Computer Science

Expected May 2026

University of Massachusetts Amherst, Amherst, Massachusetts

Relevant Coursework: Algorithms, Database Design, Systems Programming, Web Programming

TECHNICAL SUMMARY

Languages: Proficient in Python (Flask), Java, & HTML, Experience in, C++, JavaScript (React), C# (Unity), MongoDB and SQL

Software: Git, Docker, Kubernetes, Linux (Ubuntu, Kali), Jupyter Notebook, Vim, and VSCode

EXPERIENCE

Applied Research Engineer

University of Houston

May 2024 - August 2024

- Led a research project focused on integrating and optimizing Large Language Models to elevate code security analysis, achieving significant improvements in vulnerability detection
- Explored various open-source models, including Gemma, LLaMA, RoBERTa, and Phi, applying a sentiment analysis approach to assess generative model outputs, ultimately selecting RoBERTa for its superior classification performance in detecting vulnerable code
- Fine-tuned a RoBERTa model for binary vulnerability classification to enhance the precision of identifying and categorizing code vulnerabilities. Utilized the model's prediction to find specific vulnerability details using a generative language model

SOFTWARE PROJECTS

Machine Learning

Vulnerability Detection

Research

May 2024 - August 2024

- Fine-tuned the **RoBERTa** model to achieve a **96% F1** score and **1.1% false positive rate**, demonstrating effective detection of software vulnerabilities & exploits on unseen data
- Built a Flask-based web application allowing users to upload **C/C++** code for automatic vulnerability classification and analysis, identifying risks and categorizing them by type

Full Stack - Visualization

Conceptrix

Personal Project

December 2024 - Present

- Developed a full-stack JavaScript application leveraging **Manim** and **ChatGPT API**, automating the rendering of interactive mathematical and engineering visualizations
- Deployed a **microservices architecture** with two independently scalable web services, isolating the login system from the main application for improved modularity
- Integrated an **Amazon S3-backed Python backend** for seamless video storage and retrieval, enabling user-generated visualizations with **SQL database** support

DevOps Automation

AutoDocker

Personal Project

December 2024 - Present

- Designed and built a **Python CLI tool** to automate **Dockerfile generation**, container image building, and deployment, simplifying DevOps workflows
- Implemented **dynamic directory traversal** and interactive configurations to streamline containerization for projects across languages like **Python, Node.js, and Go**