Joseph Baran

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Education

Michigan State University **May 2025**
Master of Science in Computer Science *East Lansing, Michigan*

- Cumulative GPA: 3.7

Michigan State University **May 2024**
Bachelor of Science in Computer Science *East Lansing, Michigan*

Experience

ZF Friedrichshafen **May 2024 – August 2024**
AI and Automation Intern *Northville, Michigan*

- Developed an informational chatbot utilizing the Retrieval-Augmented Generation (RAG) pattern, creating an effective knowledge-sharing platform to improve performance across ZF plants.
- Directed revisions of a comprehensive data architecture model using Microsoft Visio, aligning the development team's efforts and ensuring the inclusion of all data sources in the data pipeline.
- Conducted a thorough analysis of 1,500 files using Python libraries, including Scikit-learn and Pandas, to generate actionable metadata insights for the development team.
- Initiated cross-functional collaboration with business stakeholders to design a scalable keyword similarity method to efficiently filter documents, optimizing OpenAI token usage and cutting cloud costs by 25%

Michigan State University **January 2024 – May 2025**
Graduate Teaching Assistant *East Lansing, Michigan*

- Mentored 200 students in full-stack web development, providing individualized coaching on backend, frontend, and deployment best practices via live Zoom sessions and asynchronous online forums.
- Assessed web development assignments with a focus on practical implementation of internet infrastructure, cloud deployment, and scalable application design.
- Administered curriculum on object-oriented programming in C++, providing targeted advice for students to grasp critical design concerns such as reliability, reusability, and maintainability.

Rocket Mortgage **May 2022 – August 2022**
Software Engineer Intern *Detroit, Michigan*

- Spearheaded coordination within the team by fostering clear communication channels during daily sprint meetings. Ensured seamless alignment on project goals, resulting in timely completion of project requirements.
- Led frontend initiative to design an Angular-based dialog system that dynamically triggers backend APIs, improving UX and system extensibility.
- Enhanced user experience of an internal tool by implementing a 'favorite' button which allows users to save data to their local browser storage, providing a personalized experience and quick data retrieval.

Projects

Automated Content Editor **September 2023 – December 2023**

- Constructed an intuitive AI-powered chat-assistant by integrating OpenAI's GPT-4 into a React chat component, thereby enabling users to convey their editing needs and receive immediate feedback.
- Developed a stock media integration for ACE, utilizing the Pexels API library. This feature allows users to effortlessly search for and import desired content into their projects for enhanced video editing capabilities.
- Enhanced the user interface of the React application by implementing a dynamic project sorting system and project name initialization functionality, thereby significantly improving user experience and project organization.

Machine Learning Project **January 2024 – April 2024**

- Developed and optimized a Convolutional Neural Network (CNN) model in Python using Tensorflow to detect bone fractures and osteosarcoma from X-ray images, achieving an average accuracy rating of 95 percent.
- Directed team efforts to organize and present our research findings on bone abnormality detection, effectively communicating the results to our colleagues in a informative manner.

Skills

Languages: Python, C++, JavaScript, TypeScript, HTML/CSS
Technologies: Microsoft Azure, Git, Angular, React, Flask, Tensorflow, Numpy, Pandas