Shreyas Viswanathan

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Education

Purdue University West Lafayette, IN

Bachelor of Science in Computer Science, Minor in Mathematics; GPA: 3.75 *Aug 2023 – May 2026*

- **Relevant Coursework:** Data Structures & Algorithms, Object-Oriented Programming, C Programming

Experience

Undergraduate Data Engineering Researcher Aug 2023 – Apr 2024

The Knudsen Institute *West Lafayette, IN*

- Conducted in-depth analysis in partnership with the Knudsen Institute and 5 team members to evaluate manufacturing capacities for transitioning from ICE to EV production
- Developed web scraping scripts using Python to extract detailed manufacturing processes, capabilities, and materials data from 8 small and medium-sized automotive part manufacturers' websites
- Leveraged state-of-the-art NER models like DistilBERT to identify and categorize capabilities related to CNC machining and aluminum die casting in the scraped data, achieving an average training loss of 0.006%

SRI Web Development Intern Aug 2022 – May 2023

Pacific Northwest National Laboratory *Remote*

- Spearheaded the creation of a "News" page, integrated with the live application dashboard; increased organizational visibility by showcasing the application's achievements to 6+ stakeholders, including the WPTO
- Implemented routing workflow enhancements, robust validation for district modeling processes, and resolved 20+ functional defects to ensure greater flexibility and optimal performance
- Designed and created an algorithm to combine the physical properties and geospatial vector-based geometries of 2 district-level components, resulting in improved user experience and effectiveness of data validation

Projects

Quizz.It | *Python, Flask, React, Firebase, Transformers API, Git* Jan 2024 - Aug 2024

- Built a robust OCR pipeline leveraging OpenCV, NumPy, and Pytesseract to extract text from user-uploaded documents; applied advanced thresholding techniques to enhance text extraction precision
- Engineered a Flask server with 10 endpoints supporting file upload and retrieval; integrated fine-tuned models via Hugging Face for text summarization, text generation, and question answering
- Integrated JavaScript features to optimize server communication through the Fetch API, enable real-time status updates, and facilitate seamless navigation between pages

Online Product Marketplace | *Java, Swing, JUnit, Git* Oct 2023 - Dec 2023

- Led a team of 5 to develop an online product marketplace where users can buy and sell products
- Leveraged Swing GUIs to implement an interactive interface comprising 1500+ lines of code, streamlining customer and seller interactions to enhance marketplace usability
- Deployed multithreading capabilities to support concurrent network usage ensured scalability for an unlimited client base, facilitating seamless data access and sharing operations
- Constructed a durable database using CSV files to maintain data integrity across sessions, implementing CRUD operations to mitigate risks associated with server or client shutdowns

Autonomous Driving Agent | *Python, OpenAI Gym, TensorFlow, Scikit-Learn, NumPy* Aug 2022 - Oct 2022

- Collaborated with a lead data scientist at CatapultX to develop a RL agent for autonomous driving, capable of smoothly navigating a simulated race track in 20 seconds
- Authorized a behavior cloning algorithm to train a Deep Q-Network for predicting the agent's actions within the environment with an accuracy of 84.3%
- Developed a Q-learning-based function approximator with the Epsilon Greedy Policy to estimate optimal rewards and reduce reliance on human input, achieving an increase in maximum episode reward by 112.5%

Technical Skills

Languages: Java, Python, C, JavaScript, TypeScript, HTML/CSS, R
Frameworks: React, Flask, TensorFlow, Firebase
Developer Tools: Git, GitHub, GitLab, VS Code, PyCharm, IntelliJ, Jupyter Notebook
Libraries: Pandas, NumPy, Matplotlib, Scikit-Learn, OpenCV