Walker Gollapudi

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Education

Purdue University West Lafayette, IN

Bachelor of Science in Computer Science & Mathematics, Minor in Economics *May 2027*

GPA: *3.92 / 4.00*

Experience

CS 240 Development Teaching Assistant Oct. 2024 – Present

Purdue University *West Lafayette, IN*

- Collaborated with course leadership to design, write, and implement instructional materials for 700+ students.
- Authored homework assignments in LaTeX, developing program solutions and test modules in C.
- Optimized and managed Git-based assignment distribution and submission system as well as general course infrastructure, streamlining course operations.

Software Engineering Apprenticeship Oct. 2023 – Dec. 2023

Amazon Web Services - Amazon Open Source Contributor Initiative *Virtual*

- Collaborated with AWS Principal Engineers on Amazon OpenSearch, contributing to the visualization dashboards through hands-on development and agile team practices.
- Delivered 100+ lines of code that were approved and deployed to production, strengthening OpenSearch's capabilities as an open-source data search and visualization tool.
- Gained proficiency in Git and GitHub, developing teamwork and communication skills through agile development cycles focused on iterative learning and software best practices.

Machine Learning Research Intern July 2023 – Aug. 2023

NASA - Ames Research Center *Mountain View, CA*

- Contributed to ExoMiner, a deep learning model built to discover new exoplanets from Kepler and TESS data.
- Implemented specialized regularization techniques to mitigate overfitting, including Spatial Dropout and DropBlock.
- Integrated dropout-based uncertainty metrics to provide confidence metrics for each classification, enhancing ExoMiner's first-of-its-kind explainability feature.
- Collaborated with NASA engineers to rigorously test and benchmark ExoMiner's architecture, achieving significant gains in recall and precision over existing exoplanet classifiers.
- Research was published in the *Astrophysical Journal*, showcasing ExoMiner's validation of 301 new exoplanets.

Projects

Personal Bytecode Compiler Project | *C, Git* Sep. 2023 – Present

- Developed a multi-pass bytecode compiler, learning from "Crafting Interpreters" and the "Dragon Book" to implement a custom language from scratch.
- Designed core components, including a custom garbage collector and symbol table for effective memory management and identifier resolution.
- Leveraged recursive parsing and custom-built data structures (e.g., hash tables, dynamic arrays) to optimize just-in-time execution.

NBA Game Prediction Model | *Python, PyTorch, scikit-learn, NumPy, Pandas* July 2024 – Present

- Designed a NBA outcome prediction model in Python using a Random Forest of Decision Trees, achiving 65.2% accuracy (surpassing Vegas odds at 64.3%).
- Optimized proformance through hyperperameter tuning, regularization, and feature engineering.

Honors

USA Computing Olympiad (USACO) Platinum Division Qualifier Feb. 2023

Ranked in the top 150 competitors in the nations most elite high school competitive programming competition.

3rd Place, Varsity Public Forum – Indiana State Debate Tournament (ISSDA) March 2022

Placed 3rd at Indiana's statewide debate meet, demonstrating high-level rhetoric and communication skills.

Technical Skills

Languages: C/C++, Java, Python, Bash, JavaScript, TypeScript, OCaml, R
Developer Tools: Git, GitHub, UNIX, Docker, VS Code, Cloudfare, PyCharm, IntelliJ, LaTeX, Tpyst
Libraries: pandas, NumPy, tensorflow, keras, PyTorch, scikit-learn, tensorflow, seaborn, Matplotlib, OpenGL