Vamsi Deeduvanu

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Education

Purdue University Aug. 2022 – May 2025 (exp.)
Bachelor of Science in Computer Science and Data Science *West Lafayette, IN*

- *Coursework*: Object Oriented Programming, Multivariate Calculus, Linear Algebra, Discrete Math, Probability, Statistics, Data Structures and Algorithms, Computer Architecture
- *Clubs and Extracurriculars*: ML@Purdue, Purdue Astronomy Club, Intramural Soccer
- *Honors*: Dean's List and Semester Honors (Fall 2022, Spring 2023)
- *GPA*: 4.0/4.0

Experience

Undergraduate Teaching Assistant Aug. 2023 – Present
Department of Computer Science, Purdue University *West Lafayette, IN*

- Provided instructional assistance as TA to students in CS 24000 (Programming in C) and CS 19300 (Tools).
- Conducted weekly lab sessions for 40+ students to assist in learning course material and solving assignments.
- Graded assignments and exams to provide feedback to students and help them improve.

Undergraduate Data Science Researcher Aug. 2022 – May 2023
The Data Mine, Purdue University *West Lafayette, IN*

- Partnered with Battelle on researching hyper-parameter optimization procedures for NLP models resulting in significant improvement in performance.
- Fine-tuned a BERT model from HuggingFace library to identify adverse drug events in electronic health records.
- Applied hyperband and population-based training algorithms from RayTune to tune hyperparameters and improved overall f1 score by more than 20%.
- Delivered updates in weekly sprint meetings with client and documented a standard operating procedure as a reference for future projects.
- Presented research poster at The Data Mine Symposium and demonstrated entity recognition on a live document.

Projects

cgrad | *C, cmocka, Deep Learning* Aug. 2023 – Present

- Designed a lightweight backpropagation and artificial neural network library in C to optimize memory consumption during training processes.
- Implemented a directed acyclic graph similar to PyTorch to represent computational graph of a neural network and perform backpropagation to calculate gradients.
- Utilized dynamic memory allocation to manage heap space during runtime for efficient memory usage.
- Applied cgrad to train an ANN to classify handwritten digits from MNIST dataset with 96% accuracy, using less than 2GB of memory during training.
- Created unit tests for library using cmocka framework to automate testing process and ensure functionality.

YourCollege | *Python, Scikit-Learn, Pandas, Streamlit* Jan. 2023 – Present

- Developed a college recommender application to assist high school students in college search.
- Collected data from multiple sources and performed data cleaning and feature engineering for classification.
- Trained an unsupervised learning algorithm to create a unique classification of colleges and recommendations for every user tailored to personal preferences.
- Built and deployed application on web through Streamlit to make it accessible to users.

Time Series Forecasting | *Python, Statsmodels, Pandas, Keras, Matplotlib* Sep. 2022 – May 2023

- Collaborated with members of ML@Purdue to forecast PM-10 pollution levels in California.
- Implemented an ARIMA model from statsmodels library and an LSTM model from Keras to predict PM-10 levels achieving high accuracy rates and providing valuable insights.
- Researched causes and trends of pollution levels in California and presented results at club standup meetings.

Skills

Languages: Python, C, Java, SQL (Postgres), R, LaTeX
Developer Tools: Git, Bash, VS Code, Jupyter, PyCharm, IntelliJ, Agile Methodologies
Libraries: PyTorch, HuggingFace, Keras, RayTune, Scikit-Learn, Streamlit, Pandas, NumPy, Matplotlib