Vamsi Deeduvanu

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Education

Purdue University Aug. 2025 – May 2026
Masters of Science in Computer Science *West Lafayette, IN*

Purdue University Aug. 2022 – May 2025
Bachelor of Science in Computer Science *West Lafayette, IN*

- *Coursework*: OOP, Calculus, Linear Algebra, Statistics, Data Structures and Algorithms, Computer Architecture, Machine Learning, Systems Programming, Robotics
- *Honors*: Dean's List and Semester Honors, L3Harris Scholarship, Poster Award at UG Research Expo
- *GPA*: 4.0/4.0

Experience

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

- Provided instructional assistance to students in CS 240 (Programming in C) and CS 252 (Systems Programming).
- Enhanced student's learning outcomes by conducting weekly lab sessions and office hours for 40+ students.
- Actively monitored online discussion forums to resolve student's questions outside of class.

AI/ML Intern May. 2024 – Aug. 2024
Volvo Group *Hagerstown, MD*

- Designed an edge AI pipeline to track truck service on factory floor using YOLOv8n and PaddleOCR models.
- Developed a live web interface using Streamlit to monitor KPIs such as truck count and takt time on-prem.
- Utilized Azure ML Studio conduct labeling, automate model training, and generate containers for deployment.
- Leveraged VAR and LSTM models to forecast service requests to reduce downtimes and improve service efficiency.

Undergraduate Researcher Aug. 2023 – Dec. 2023
TinyML/IIoT, Purdue University *West Lafayette, IN*

- Collaborated with local industry partners to establish a low-cost IIoT-based machine monitoring framework.
- Developed a data pipeline to collect and process real-time machine and sensor data using MTConnect.
- Labelled and annotated sensor data to train a deep learning model to predict machining failures.

Data Science Researcher Aug. 2022 – May 2023
Battelle *West Lafayette, IN*

- Conducted research on hyperparameter tuning algorithms for LLMs and established an SOP for future projects.
- Fine-tuned BioBERT from HuggingFace to accurately identify adverse drug events in electronic health records.
- Boosted overall f1 score by more than 20% using hyperband and population-based algorithms from RayTune.

Projects

UNIX Shell | *C, C++, Flex, Bison, UNIX* Jan. 2024 - May. 2024

- Built a UNIX shell interpreter with support for complex command parsing and subshell execution.
- Integrated wildcard expansion using C++ regex to execute commands on multiple files simultaneously.
- Designed a feature rich line editor supporting command history, path completion, and prompt customization.

hirehack | *Python, JavaScript, PyTorch, HuggingFace, PRAAT, WebSpeech API* Jan. 2024 - Feb. 2024

- Developed a Chrome extension to automatically analyze interview performance and provide feedback.
- Integrated facial emotion, prosodic, and lexical features into a multi-modal model to score interview performance.
- Interfaced Mixtral-7B from HuggingFace API to interpret model output and generate feedback in real-time.

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

- Created a lightweight neural network library from scratch in C achieving 96% accuracy on MNIST dataset.
- Programmed support for layers, activation functions, gradient descent methods, and regularization options.
- Automated testing process and ensured functionality by creating unit tests using cmocka framework.

Skills

Languages: Python, C, C++, Java, SQL (Postgres), R, JavaScript, LaTeX, x86-64 Assembly
Developer Tools: Git, Bash, Linux, MTConnect, XML, Azure DevOps, Thingworx, Agile Methodologies
Libraries: PyTorch, HuggingFace, Keras, Ultralytics, RayTune, Scikit-Learn, Streamlit, PySpark, Tensorflow, Plotly