Vamsi Deeduvanu

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Education

Purdue University Aug. 2024 – May 2026
Masters of Science in Computer Science *GPA: 4.0/4.0*

Purdue University Aug. 2022 – May 2025
Bachelor of Science in Computer Science *GPA: 3.99/4.0*

- *Coursework*: OOP, DSA, Computer Architecture, Systems Programming, Compilers, AI, Machine Learning, NLP, Robotics, ML Systems, Randomized Algorithms, Statistical Theory
- *Honors*: Dean's List and Semester Honors (6x), L3Harris Scholarship, UG Research Expo Award

Experience

Software Development Engineer Intern May 2025 – Aug. 2025
Amazon, Project Kuiper *Redmond, WA*

- Developed a cost tracing service with RESTful API improving supply chain cost visibility for Project Kuiper.
- Deployed a scalable serverless data pipeline on AWS achieving sub-10ms queries on millions of cost events.
- Built an MCP agent using Neo4j and Claude enabling non-tech stakeholders to perform natural language queries.

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

- Designed an edge AI pipeline to identify service bottlenecks on factory floor using YOLOv8n and PaddleOCR.
- Developed a live web interface using Streamlit to monitor KPIs such as truck count and takt time on-site.
- Leveraged VAR and LSTM models to forecast service requests to reduce downtimes and improve service efficiency.

Undergraduate Teaching Assistant Aug. 2023 – May 2025
Department of Computer Science, Purdue University *West Lafayette, IN*

- Mentored undergraduate students on foundational concepts in C programming and systems programming courses.
- Developed programming assignments and test frameworks to automate evaluation of students' understanding.
- Led weekly lab sessions and office hours for 40+ students enhancing student learning outcomes and grades.

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

- Developed a data pipeline to collect and process real-time CNC machine and sensor data using MTConnect.
- Labelled and annotated sensor data to train a CNN to predict machining failures with $> 90\%$ accuracy.

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

LLM Uncertainity Calibration | *Python, PyTorch, HuggingFace, scikit-learn, LMDB* Mar. 2025 - May 2025

- Built an LLM calibration pipeline to quantify response uncertainty on real-world tasks during inference.
- Designed a rigorous scikit-learn evaluation suite to compute error metrics and generate calibration curves.
- Scaled experiments with LMDB tensor caching and batched GPU inference, speeding up experiments.

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

- Developed an LLM agent to automatically analyze interview performance through a Chrome extension.
- 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, C++, cmocka, Deep Learning* Aug. 2023 – Sep. 2023

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

Skills

Languages: Python, C, C++, Java, SQL, R, CUDA, JavaScript, TypeScript, Smithy, LaTeX, x86-64 Assembly
Developer Tools: Git, Bash, UNIX, MacOS, AWS, Azure, IaC, Docker, Neo4j, REST API, uv, Agile
Libraries: PyTorch, HuggingFace, RayTune, Streamlit, Tensorflow, JAX, LLVM, MLIR, TVM, CDK