David Geddam

Email: dgedd236@students.bju.edu

Portfolio, LinkedIn, GitHub

EDUCATION

Bob Jones University — Greenville, SC
Bachelor of Science in Computer Science — *Expected graduation: May 2027*

PAPERS

Fault Prediction in Wind Turbines via Joint-Embedding Predictive Architecture — *Jan. 2026*
Under Peer Review · [Abstract] [Code] — *Southeast IEEE*

- Accomplished a 20-day lead time by predicting mechanical failures measured by latent surprise thresholds by developing a self-supervised world model anchored in the physical law ($P \propto v^3$).
- Achieved an AUROC score of 1.00 in distinguishing healthy vs anomalous states by implementing a non-reconstructive VICReg implementation to avoid model collapse and decorrelate over 4,755 high-dimensional features. Seperation was validated under strict Out-Of-Distribution conditions. Optimized training efficiency by overcoming several bottlenecks including limited 30GB VRAM and compute time, through a float32 modality mapping pipeline, enabling stable execution of the world model on a standard NVIDIA T4 GPU.

World Model Verifiers for Out-Of-Distribution Policy Safety — *Jan. 2026*
Developing

- Current RL agents and LLM-driven robots are "black boxes." They lack a world model to warn them before violating a physical boundary. Proposing a world model that quantifies latent surprise via non-reconstructive predictive architectures to verify out-of-distribution safety violations.

EXPERIENCE

Lovable — New York City Metropolitan Area
Campus Leader — *01/2026 – present*

- Selected to represent AI software development platform, managing partnerships, and organizing AI-assisted development hackathons.

Independent Research — New York City Metropolitan Area
Research Assistant — *12/2025 – present*

- Supervisor: Sumanth Ratna. Kandavalli (ratna@nyu.edu).

PROJECTS

BibleGPT | *Python, PyTorch, LoRA, Cursor* — December 2025

- Fine-tuned Google's gemma model using PEFT with LoRA techniques on a custom dataset to generate biblically-styled text, implementing a context-aware system that dynamically injects scriptural context (Book/Chapter) for high-accuracy responses to biblical questions. Deployed the model through a full-stack application with FastAPI backend serving real-time inference and a responsive frontend UI, built using AI-assisted development techniques. Finally submitted to Google DeepMind's vibe coding hacakathon conducted on kaggle.

Tiny Siri - Edge-Optimized Intent Classification | *Python, PyTorch, Transformers, Streamlit* — November 2025

- Built a voice intent classifier by fine-tuning DistilBERT with a custom data augmentation pipeline, achieving 97 percent test accuracy and deploying it via Hugging Face Spaces and Streamlit. Optimized the model for on-device deployment using PyTorch dynamic quantization, reducing memory footprint by 48 percent (255MB → 132MB) while maintaining full precision.

Medical diagnosis with Hybrid Vision Transformers | *PyTorch, CNNs, Transformers* — October 2025

- Built a deep learning pipeline using a hybrid MobileNetV2 + Transformer architecture with self-attention mechanisms to classify brain dementia types and lung cancer malignancies, achieving 98 percent and 95 percent test accuracy respectively. Also used the Transformer's spatial feature processing to identify localized malignant patterns, with Grad-CAM heatmaps providing explainability.

SKILLS

Programming: Python, PyTorch, Scikit-learn, Pandas, NumPy, Matplotlib, Docker, Git, CI/CD, Cursor