Bhuvan S

AI & Machine Learning Student | Deep Learning, Generative AI & Agentic AI

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github.com/Bhuvan-S-prasad bhuvan-s-prasad.github.io/portfolio

Profile

Final-year Computer Science Engineering (Artificial Intelligence) student with hands-on experience in developing and deploying deep learning solutions for computer vision, medical imaging, and intelligent agents. Skilled in PyTorch, TensorFlow, Explainable AI, RAG (Retrieval-Augmented Generation), Agentic AI, and Generative AI. Strong understanding of large language model (LLM) architectures. Experienced in building end-to-end ML pipelines, optimizing model performance, and integrating explainability techniques to ensure real-world applicability.

Skills

Programming:
Python, Java, and C

Web Development:
HTML, CSS, JavaScript and React

Frameworks & Libraries:
Flask, PyTorch, and TensorFlow

AI/ML:
Machine Learning, Deep Learning, NLP, Generative AI

Applied Skills:
Explainable AI, Agentic AI, Model Training, Fine-Tuning, and Optimization

Projects

Ensemble Deep Learning and RAG-powered AI System for Brain Tumor Detection and Clinical Support

- Developed a brain tumor detection system using an ensemble of ResNet50, EfficientNet-B0, and DenseNet121, achieving 97.6% validation accuracy and outperforming state-of-the-art benchmarks by +2–5%.
- Automated ML workflows with CI/CD pipelines (GitHub Actions) and built the serving layer with Flask, ensuring scalability, reproducibility, and smooth integration.
- Incorporated Grad-CAM and SHAP explainability modules into the serving layer, enabling real-time clinical interpretability and trust in predictions.
- Designed a hospital RAG chatbot for patient support to handle FAQs, doctor availability, surgery protocols, and hospital procedures — integrating Retrieval-Augmented Generation (RAG) with LLMs for contextual, accurate, and interactive responses.

Bird Species Classification (Computer Vision | ResNet50 | Deep Learning)

- Built and fine-tuned a ResNet50-based CNN to classify 100 bird species from a custom dataset, achieving 87% validation accuracy on limited training data.
- Applied image normalization, data augmentation, dropout regularization, and staged fine-tuning (layer freezing → gradual unfreezing) to enhance model generalization and reduce overfitting.
- Logged training/validation metrics per epoch to CSV for experiment tracking, monitoring, and reproducibility.
- Integrated Grad-CAM visualizations to provide interpretability into model predictions, improving transparency and trust.

Education

2022 – present, India
B.E. in Computer Science Engineering- Artificial Intelligence
Maharaja Institute of Technology Mysore
Current CGPA: 8.5

Nanjangud, India
Pre University Course
Citizen's PU college
Achieved 87%

Courses

Introduction to Neural Network with PyTorch
IBM, Coursera

IBM Machine Learning Specialization
Coursera

Extracurricular Activities

Workshops & Knowledge Sharing:
Organized and delivered workshops on Python Programming, AI Agents, and LLMs for juniors and peers in the Department of Computer Science & Artificial Intelligence and the Department of Computer Science & AI/ML, sharing knowledge and creating awareness of peer learning within the academic community.