Vedant Upganlawar

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EDUCATION

University of Florida (GPA: 3.55/4.00) — **August 2023 - May 2025**
Master of Science in Computer Science — Gainesville FL, United States

BITS Pilani Work Integrated Learning Programme (GPA: 7.52/10) — **August 2021 - June 2023**
Master of Technology in Software Engineering **(sponsored by SAP Labs India)** — Bangalore, Karnataka, India

Pimpri Chinchwad College of Engineering (GPA: 9.19/10) — **August 2017 - July 2021**
Bachelor of Engineering in Computer Engineering — Pune, Maharashtra, India

WORK EXPERIENCE

College of Nursing, University of Florida — **June 2024 - Present**
Graduate Research Assistant — Gainesville, FL, USA

- Led a research project developing a high-performance-Retrieval Augmented Generation (RAG) pipeline with **LangChain, ChromaDB, and OpenAI APIs** to standardize nursing data for 2 major health systems of Florida:UF Health and Advent Health. The work on RAG optimization and advanced prompt engineering earned **acceptance at AMIA 2025 conference.**
- Optimized document chunking, text embeddings (OpenAI's ada-002, BERT's AMLV), and Top-K tuning, to increase retrieval accuracy to 85%, and enhancing the nursing documentation efficiency. **(NLP, Text Embeddings, Text Splitting)**
- Benchmarked advanced prompt engineering techniques and combinations: Few-Shot Learning, Chain of Thought, Structured Prompting, and Self-Refinement, alongside performance analysis of LLMs: GPT-4 vs. GPT-4o, increasing mapping accuracy from 55% to 74% for EHR data standardization. **(Prompt Engineering, Model Optimization)**
- Fine-tuned the Gatortron transformer model, pre-trained on medical data, for semantic similarity, achieving 78% retrieval accuracy, demonstrating fine-tuning's potential to match vector database performance. **(Hugging Face, HiperGator)**

SAP Labs India Pvt. Ltd — **August 2021 - July 2023**
Associate Developer — Bengaluru, Karnataka, India

- Enhanced system performance by optimizing cloud-based microservices architecture, achieving a 30% improvement in throughput through streamlining REST APIs and seamless integration of services. Deployed the automated CI/CD pipelines leveraging Docker and Jenkins. **(Java Spring Boot, REST APIs, SAP HANA Cloud, Docker, Jenkins)**
- Engineered high-performance data processing pipelines, harnessing optimized data structures to slash ETL execution time by 40%, while ensuring scalability and integrity. **(Apache Hadoop, Python, Databricks)**
- Developed intuitive data visualizations with Matplotlib, Seaborn, and ggplot2, delivering microservices analysis via four comprehensive data-driven reports, enhancing stakeholder understanding and decision-making. **(Python, R, MATLAB)**
- Accelerated frontend performance with pagination, lazy loading, and efficient state management, cutting page load time from 4s to under 2s, enhancing responsiveness and improving the experience for beta users. **(Javascript, SAP UI5)**

PUBLICATIONS

Weighted Blending Fusion for Low Illumination Imagery Enhancement (SSRN) — **June 2021**
- Presented at *ICICNIS Conference, June 2021.* **(Image Processing, Computer Vision, Contrast Enhancement)**

Fusion Based Approach for Enhancement of Low-Illumination Imagery (IEEE) — **May 2021**
- Presented at *INCET Conference, May 2021.* **(Hybrid model, Color Preservation)**

PROJECTS

QuickQuizz, AI-Powered Interactive Learning Web App — **September 2024**
- Created QuickQuizz, an AI-powered learning tool that converts PDFs into interactive slides, featuring a RAG-based voice assistant for contextual QA using OpenAI API. It also evaluates the user's knowledge by generating a quiz followed by a personalized performance report. **(React, Flask, LangChain, ChromaDB, OpenAI API)**

Multimodal Movie Genre Classification — **June 2024**
- Combined BERT for text analysis and VGG16 for image processing to classify movie genres, achieving 83% accuracy through multimodal learning. **(Transformers,Multimodal learning, Natural Language Processing)**

Audio Classification: Progressive Rock vs. Non Progressive Rock Music — **April 2024**
- Executed audio algorithms using a CNN-based model in PyTorch to classify songs into progressive rock and non-progressive rock categories, achieving 82% classification accuracy, validated through rigorous testing. **(Pytorch, Deep Learning)**

TECHNICAL SKILLS

Programming :	Java, Python, R, C, C++, Javascript, Golang, Bash
Databases:	SQL, PostgreSQL, MongoDB, SAP HANA, ChromaDB
Web Development:	HTML, CSS, Bootstrap, Jquery, React.js, Node.js, SAP-UI5, REST API, FastAPI
Cloud and Infrastructure:	AWS, Docker, Jenkins, Kubernetes, CI/CD, Git version control
Tools and Frameworks:	Langchain, LlamaIndex, Django, Spring Boot, MATLAB, HiperGator
AI/ML/NLP:	Pytorch, LLM, RAG, scikit-learn, OpenCV, Tensorflow, LLM Fine tuning, Spacy NLTK, Keras, Pandas, Agentic AI, Phidata