# Vishnu Koraganji

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## Professional Summary

MS in Computer Science graduate from Penn State University with specialization in AI/ML, NLP, Gen AI and Agentic systems, with 1-2 years of project based solid foundations in machine learning and hands-on experience deploying end-to-end ML solutions using Python, PyTorch, and TensorFlow. Demonstrated ability to solve complex problems and optimize performance, eager to apply skills in building scalable ML systems and cutting-edge ML projects within a dynamic ecosystem.

## Technical Skills

**Languages**: Python, Java, C, JavaScript, SQL, React, R
**Machine Learning & Deep Learning**: (PyTorch, TensorFlow/Keras, Pandas, Scikit-learn, NLTK, MLFlow, DVC); Classification, Clustering, Regression, Recommender Systems, Information Retrieval, NLP, Statistics, Computer Vision, Time Series Forecasting, CNN, RNN, YOLO, Machine Learning, Ranking and Searching
**Gen AI Tech Stack**: Transformer models-BERT, GPT, Gemini, Llama, RAG, PEFT (LoRA & QLoRA) **-** Fine Tuning LLM, Langchain, CrewAI, Hugging Face, Sentiment Transformers, FAISS, FastAPI
**MLOps**: Advanced training in MLOps, focusing on building scalable and reproducible ML pipelines. Proficient in experiment tracking (MLFlow), model/data versioning (DVC), Docker-Containers, CI/CD/CT for machine learning.
**Databases & Tools**: ChromaDB, PostgreSQL, Firebase, Ollama, Ngrok, VS Code, Eclipse, AWS, GCP, ArcGIS/QGIS, Git
**Relevant Coursework**: AI/ML, NLP, Statistics, DSA & OS, Algorithms Analysis, DBMS & Data Analytics

## Projects

**AI Agentic Resume Tailor** *(CrewAI, FastAPI, React, LangChain, Gemini API, Scrapy)* **Mar 2025 - May 2025**

- Developed CrewAI multi-agent system to automate resume tailoring, boosting ATS scores by **25-40%** via keyword improval
- Engineered web scraping agent to parse job descriptions from **5+ major job boards** (e.g., LinkedIn, Indeed) (**95% accuracy**), eliminating manual data entry by **75%**.
- Built robust document processing pipeline (PDF, DOCX, LaTeX) ensuring **100% format preservation** and generating tailored outputs in **30 seconds**, deployed with FastAPI supporting workflow and job tracker managing **50+ applications**.

**RAG Based QA Bot** *(PyTorch, DistilBERT, FAISS, FastAPI, LangChain, DOM, Ollama, Ngrok)* **Jan 2025 - Apr 2025**

- Engineered a RAG chatbot to perform nuanced Q&A on unstructured text, leveraging the Amazon Reviews 2023 dataset to improve product discovery from **(213,593 products)**.
- Integrated FT-DistilBERT for sentiment analysis, **89% validation accuracy**, and FAISS + MMR for efficient retrieval.
- Achieved **95%** off-topic query rejection and **0.85** cosine similarity for product queries, enhancing response relevance.
- Deployed the chatbot on an Amazon-like front-end with FastAPI, delivering sentiment-aware responses in **2–3** seconds.

**Skin Cancer Detection System** *(Python, OpenCV, TensorFlow, PyTorch, YOLOv8, NumPy)* **Aug 2024 - Dec 2024**

- Developed a skin cancer detection system using **YOLOv8** with a novel **SCSA Attention Module**.
- Integrated a YOLOv8 preprocessing pipeline (artifact removal, CLAHE, color normalization) to boost image quality.
- Evaluated with the HAM10000 dataset, achieving **a 4% mAP@50** improvement over baseline YOLOv8.
- Enhanced model precision and recall **by +8%** ensuring uniform, high-quality input data before training.

**Estimation & Analysis of Landslides** *(Python, NumPy, Pandas, HDF5, TensorFlow/Keras, ArcGIS)***Jan 2023 - May 2023**

- Integrated atmospheric (NDMI, water vapor) and geographical (slope) data for landslide prediction.
- Modeled landslide susceptibility using DEM, NDMI, slope generation, elevation, rainfall, & geological content as input to a U-Net model, achieving **98% accuracy, +3% more** than extended model.
- Proposed new method for estimating landslides & generated a landslide susceptibility map for SR-530 with **93%** accuracy.

## Experience

**Graduate Teaching Assistant | Penn State University**, *Middletown, PA* **Aug 2023 - May 2025**

- Assessed **10+** final-year projects in Computer Science, provided detail written feedback and advised on project management
- Facilitated comprehensive learning for Data Structures & Algorithms and Calculus by reviewing tests and exams, focusing on algorithmic complexity and optimization principles relevant to large-scale system development.
- Guided teams on Agile and SDLC best practices in Software Engineering, evaluated Unity tasks (3D models, textures, rendering) in Computer Graphics, and refined grading rubrics/syllabi using UML and use-case diagrams.

**Cloud Architect Intern | AWS (Amazon Web Services)**, *Vijayawada, IND* **Oct 2021 - Dec 2021**

- Achieved foundational skills in provisioning and managing AWS services, including **EC2, S3, RDS, and VPC**, to establish robust cloud infrastructure reinforcing best practices in system reliability and performance.
- Optimized resource usage traffic distribution by configuring auto-scaling policies and load balancers.
- Secured cloud environments through IAM access controls, encryption mechanisms, and CloudWatch monitoring solutions.

## Education

**Penn State University** **Aug 2023 – May 2025**
*Masters in Computer Science* *Middletown, PA*

**VR Siddhartha Engineering College** **Aug 2019 - May 2023**
*Bachelors in Computer Science Engineering* *Vijayawada, India*