SAHIL ADIVAREKAR

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EDUCATION

M.S. Computer Science and Engineering The Pennsylvania State University, University Park, PA
Aug 2023 – May 2025 GPA: 3.5/4.0
Relevant Coursework: Large-Language Models; Multi-modal Learning; Neurosymbolic AI; Adversarial Deep Learning

B.E. Computer Engineering University of Mumbai, Mumbai, India
Aug 2019 – May 2023 GPA: 3.6/4.0
Relevant Coursework: Data Structures & Algorithms; Operating Systems; Cloud Computing; Deep Learning; NLP

SKILLS

NLP / LLMs	Transformers: GPT-x, BERT, MiniLM, Prompt Engineering, LLM Evaluation: BLEU, ROUGE
ML & DL	Supervised, Unsupervised, Reinforcement Learning, Generative AI, Recommendation Systems
Programming	Python, Java, SQL, C, JavaScript
Frameworks	PyTorch, TensorFlow, Hugging Face, Scikit-learn, LangChain, Streamlit, Django, Flask
Cloud	AWS SageMaker, AWS S3, AWS EC2, AWS Lambda, AWS ECS, Docker, Kubernetes, MLflow, TensorBoard, FastAPI
Data & Tools	Git, GitHub, Ubuntu, MySQL, PostgreSQL, Feature Engineering, Data Manipulation, A/B Testing

EXPERIENCE

Smeal Business School – AI/ML Engineer Aug 2024 – May 2025
– Analyzed over 2 million ZuluTrade records using statistical modeling and unsupervised learning (K-Means, PCA) to model linguistic sentiment & risk signals, boosting trader profiling accuracy 23%
– Streamlined an AI profiling pipeline with MiniLM and prompt engineering, tripling insight generation speed
– Devised an explainable pattern recognition tool that reduced manual analysis time by 40% and improved interpretability

Webminix Consulting – Software Engineer, Machine Learning Sep 2023 – Mar 2024
– Conceptualized scalable ML workflows on AWS for finance and retail clients, enabling forecasting, real-time anomaly detection, and intelligent decision systems to streamline operations and reduce latency
– Collaborated with cross-functional teams to curate datasets and build pipelines, reducing deployment time by 25%
– Integrated intelligent model orchestration into systems, improving accuracy by 15% and reducing manual tasks by 20%

TSEC – ML Research Engineer Sep 2022 – Jul 2023
– Analyzed 10 years of Mumbai weather data using Random Forest to predict rainfall trends with 92% accuracy
– Proposed a novel augmentation method using image merging and transformation, outperforming traditional techniques
– Refined CNN models on a 54,305-image plant dataset using regularization, identifying the most effective model

VK Developers – AI/ML Engineer Feb 2022 – Aug 2022
– Achieved 92% prediction accuracy and 15% cost savings via SHAP-driven insights on 50k+ entries

PROJECTS

MiniViT-GPT: Context-Aware Story Generation
– Developed a multimodal transformer model combining ViT, MiniLM and GPT-2 for frame-based visual understanding and context-driven narrative generation, achieving 64% BLEU-1
– Applied multi-modal prefix tuning techniques to inject visual features and contextual prompts into LLMs

ResearchMind: AI Research Assistant
– Engineered a Django-based RAG system using LangChain, Hugging Face ChromaDB and AWS to improve comprehension of research papers through smart summarization and semantic search, reducing response latency by over 60%
– Deployed scalable backend on EC2 with S3 and ChromaDB-powered semantic retrieval for fast LLM-driven Q&A

NeuroScoop: News Article Engine
– Pioneered a scalable recommendation engine for 200K+ news articles by leveraging metadata (author, co-author, headline) to extract contextual signals, significantly enhancing retrieval quality and personalization
– Leveraged MiniLM embeddings with ChromaDB for semantic search, increasing article match accuracy by 30%

Autonomous Stock Trading Agent (RL)
– Devised a PPO-based trading agent to dynamically execute buy/sell/hold actions using historical stock data, achieving a 12% gain over baseline models while simulating realistic trading conditions and yeilding 60% return over 4 years
– Customized an OpenAI Gymnasium simulation, for episodic interaction with financial time-series data to foster long-term strategy optimization via reinforcement learning