

# VAMSI KATTERA

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## Professional Summary

AI Engineer and MSc Advanced Computer Science graduate with hands-on experience in building, deploying, and optimizing AI applications. Strong foundation in machine learning, deep learning, computer vision, and generative AI, with real-world project experience using Python, TensorFlow, Streamlit, and AWS EC2.

## Skills

### Programming & Data

Python, Pandas, NumPy

### Machine Learning & Deep Learning

Supervised & Unsupervised Learning, Model Evaluation (Accuracy, Precision, Recall, F1-score), Data Preprocessing, Feature Engineering Deep Learning, Neural Networks, CNNs, RNNs, LSTMs, Encoders, Decoders & Autoencoders, Transfer Learning, Model Fine-Tuning

### Natural Language Processing (NLP)

Text Classification, Sentiment Analysis, Word Embeddings, Prompt Engineering, Transformers: Attention, Multi-Head Attention, Masked Attention

### Computer Vision

Image Classification, MobileNetV2, Data Augmentation

### Generative AI

Google Gemini API, Context-Aware AI Responses, AI-Assisted Code Evaluation, REST APIs, API Integration, LangChain (LLM chaining, prompt templates)

### Frameworks & Libraries

TensorFlow, Keras, Scikit-learn

### Deployment & Cloud

Streamlit, AWS EC2 (Model & App Deployment), Linux Basics

### Tools & Development

Git, GitHub, Matplotlib, Jupyter Notebook

## Projects

### Adaptive Coding Challenges – GenAI Coding Assistant - [Live Demo](#)

**Tech Stack:** Streamlit, Google Generative AI (Gemini), Pandas, AST, Python

- Developed an **AI-powered adaptive coding platform** that dynamically adjusts problem difficulty based on user performance.
- Integrated **Gemini API** to generate real-time, context-aware hints and feedback for coding solutions.
- Implemented **secure sandboxed code execution** using Python AST for safe evaluation of user-submitted code.
- **Deployed the application on Streamlit and AWS EC2**, enabling scalable, cloud-based access.

### Brother Jackey – Personal AI Voice Assistant - [GitHub](#)

**Tech Stack:** Python, SpeechRecognition, pyttsx3, Gemini API, Picovoice Porcupine

- Developed a **Jarvis-inspired AI voice assistant** capable of wake-word detection, natural language conversation, and real-time task execution.
- Integrated **Gemini API** to enable **context-aware conversational responses** with basic memory handling.
- Implemented **voice input/output pipelines** using SpeechRecognition and pyttsx3 for hands-free user interaction.
- Enabled **voice-controlled system and web automation** (opening applications and websites) through natural speech commands.

### AI vs Real Image Classifier - [Live Demo](#)

**Tech Stack:** TensorFlow, Keras, MobileNetV2, Python, Streamlit, NumPy, Matplotlib

- Built an **image classifier** to distinguish AI-generated images from real images using transfer learning.
- Improved model performance through **data augmentation, fine-tuning, and training optimization**.
- Optimized training using **early stopping and learning rate scheduling** to prevent overfitting.
- **Deployed the model using Streamlit and AWS EC2**, supporting real-time image uploads and predictions.

## Education

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### University of Strathclyde, Scotland, UK

**MSc Advanced Computer Science**

Jan 2025 – Jan 2026

**Relevant Coursework:** Machine Learning, Deep Learning.

## Certificates

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- **Deep Learning Specialization** – DeepLearning.AI (Coursera, 2025)
- **Mathematics for Machine Learning and Data Science** – DeepLearning.AI (Coursera, 2025)