

KARAN PANWAR

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Professional Profile

Data Scientist and AI Engineer specializing in designing and deploying scalable, intelligent solutions. Leveraging a strong foundation in machine learning, computer vision, and full-stack development, I transform complex data into impactful, user-centric products. Pursuing an MSc in Computer Science to deepen my expertise in advanced AI systems and their real-world applications.

Professional Experience

Research Assistant - Advanced Machine Learning

Jan 2025 – May 2025

Anglia Ruskin University

Cambridge, UK

- Led research comparing Quantum Neural Networks to traditional CNNs, significantly improving processing efficiency for specific image recognition tasks.
- Developed and fine-tuned predictive financial models, achieving a measurable increase in back-tested accuracy.
- Engineered novel semantic data processing algorithms to automate insight generation from unstructured text, substantially reducing manual analysis time.

Technical Skills

ML & AI: TensorFlow, PyTorch, Keras, Scikit-learn, OpenCV, NLP, LSTM, CNN, GANs

Data Science: Pandas, NumPy, Matplotlib, Power BI, ETL Pipelines, Statistical Modeling

Web Development: Node.js, Python (Django, Flask), React.js, Next.js, TypeScript, REST APIs

Databases: MySQL, PostgreSQL, MongoDB

Tools & Platforms: Docker, Git & GitHub, Jupyter

Projects

Digital Health & Wellbeing Agent

Technologies: TypeScript, Node.js, NLP, REST APIs

- Engineered a personalized recommendation engine using NLP to interpret user queries and provide tailored health advice.
- Deployed a scalable backend with Node.js and TypeScript, ensuring high uptime for concurrent users.

Emotion-Based Music Recommender

Technologies: CNN, Deep Learning, Computer Vision, Spotify API

- Achieved high accuracy in facial emotion detection by building and training a custom CNN.
- Integrated the Spotify API for seamless, real-time playlist generation to enhance user engagement.

Sign Language Translator

Technologies: Python, Django, Deep Learning, Accessibility

- Developed a real-time sign language translation model using deep learning to bridge communication gaps.
- Built an accessible full-stack application with Python and Django for text/speech-to-sign conversion.

Stock Market Prediction Engine

Technologies: LSTM, Time Series, Python, HTML/CSS, Finance

- Designed an LSTM-based model to forecast market trends on historical data.
- Developed a custom web interface using HTML & CSS for real-time data visualization.

Eye-Tracking Cursor Control

Technologies: Computer Vision, Python, OpenCV

- Engineered a gaze-based cursor control system for users with limited mobility using advanced eye-tracking algorithms.
- Designed custom calibration protocols to enhance accessibility and user experience.

AI Image Cartoonizer

Technologies: Python, OpenCV, Generative Adversarial Networks

- Implemented a GAN-based model to transform real-world images into stylized cartoon versions.
- Optimized the model for fast inference, allowing for near real-time image processing.

Education

MSc in Computer Science

Sep 2024 – Oct 2025 (Expected)

Anglia Ruskin University, Cambridge, UK

Relevant Modules: Machine Learning in Finance, ML for Imaging, Semantic Data Technologies, Advanced Web Solutions, Cyber Security & AI Case Studies.

BSc in Computer Applications – First Class

May 2021 – May 2024

St. Xavier's College, Ahmedabad, India

Relevant Modules: Python for Big Data & ML, Database Management Systems, Data Structures, Object-Oriented Programming, Statistical Computing.

Certifications

Python for Data Science (IBM) • Data Analytics & Visualization (Accenture) • Software Engineering (JP-Morgan) • Generative AI (BCG) • Cloud Practitioner (AWS) • Generative AI (TATA) • AI Fundamentals (Ford) • Data Analytics (Quantium) • Cybersecurity (British Airways)