

MOHAMMED AAHIL PARSON

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EDUCATION

PES University

Expected June 2027

B.Tech in Computer Science and Engineering

Relevant Coursework: Machine Learning, Generative AI and Applications, Big Data, Data Structures and Algorithms, Database Management Systems, Operating Systems, Computer Networks, Cloud Computing, Object-Oriented Programming

RESEARCH EXPERIENCE

Centre of Cognitive Computing and Computational Intelligence (C3I), PES University

Bengaluru

AI Research Intern

June 2025 - July 2025

- Maritime authorities face challenges spotting anomalous vessel behaviour across millions of AIS pings, with almost no labelled examples to learn from.
- Independently designed and built a Bidirectional GRU Autoencoder and One-Class SVM pipeline covering preprocessing, 10-step trajectory windowing, training, and synthetic-anomaly evaluation; achieved 99.20% precision and 84.79% F1-score, and co-authored the resulting peer-reviewed paper, published via Elsevier SSRN in the proceedings of the 7th Doctoral Symposium on Computational Intelligence (DoSCI-2026, 16% acceptance). [Read paper](#)

PROJECTS

Contract Risk Analyzer [Live](#) | [Code](#)

RAG, LLM APIs, ChromaDB, FastAPI, Celery, Redis, Docker

- Legal review of contracts is slow and inconsistent because risk has to be located clause by clause, by hand.
- Designed, built, and deployed a contract-analysis system for PDF clause extraction, semantic retrieval over a ChromaDB vector store, structured risk assessment through a multi-provider LLM pipeline, and report generation on Vercel and Railway; built evaluation harnesses over 90 benchmark clauses, achieving 80%+ top-3 retrieval hit rate, 90%+ contract-type precision, and 100% metadata and JSON/schema validity.

WriteYou - Personalised Writing-Style Adaptation Engine [Paper](#)

(first author) Python, Flask, sentence-transformers

- AI-drafted text reads as generically formal and loses the voice of the person who has to sign it.
- Designed and built a six-stage retrieval-and-rewrite pipeline over a 44,884-word personal corpus, combining 768-dim style embeddings with a 30-signal rule-based habit scorer, hybrid retrieval, and an iterative refinement pass; built the Flask REST backend and the evaluation harness, achieving a mean BERTScore F1 of 0.955 across logged trials.

Hybrid Hangman AI Solver [Code](#)

PyTorch, Hidden Markov Models, Deep Q-Networks

- A reinforcement-learning agent guesses letters blindly and ignores the structure already present in the language.
- Built and integrated 24 position-based Hidden Markov Models with a Deep Q-Network using a 619-dimensional state representation, experience replay, target-network updates, and epsilon-greedy exploration; the hybrid policy reached a 94.40% win rate across 2,000 unseen test words, against 7.18% for the standalone DQN, during a Machine Learning course hackathon.

Real-Time ASL Alphabet Recognition [Code](#)

PyTorch, OpenCV, Streamlit, CUDA

- Fingerspelling has to be read live from a webcam, so accuracy is worthless if the model cannot keep up with the frame rate.
- Independently designed the complete custom-CNN codebase covering dataset processing, augmentation, training, evaluation, and webcam inference behind an interactive Streamlit application; optimised training and inference for an NVIDIA RTX 4060 using mixed precision, Tensor Core-aligned layers, dynamic batching, and gradient accumulation, reaching approximately 85% validation accuracy, 10-30 ms inference, and 30+ FPS on an 80/20 split.

TECHNICAL SKILLS

Languages: Python, C++, SQL, JavaScript, TypeScript

AI & ML: PyTorch, scikit-learn, deep learning, computer vision, NLP, CNNs, GRU/LSTM, Hidden Markov Models, reinforcement learning (DQN), One-Class SVM, XGBoost, anomaly detection

GenAI & Retrieval: RAG pipelines, LLM APIs, embeddings, vector search (ChromaDB, FAISS), evaluation harnesses and benchmarking

Frameworks & Tools: FastAPI, Flask, Streamlit, OpenCV, PostgreSQL, Redis, Celery, Supabase, Docker, REST APIs, AWS Bedrock, Apache Kafka, Apache Spark, Git/GitHub, Linux, Railway, Vercel

ACHIEVEMENTS

- Top 150 of approximately 3,000 teams, Atos Srijan 2026 (Nimbus, an AI cloud-security copilot).
- 96th of 1,380 teams, Guidewire DEVTrails 2026 (InsureIt).
- Built the AWS Bedrock and FAISS-backed FastAPI backend for a working cloud-security copilot MVP in approximately nine hours at the NIMBUS1000 hackathon.