

# MOHAMMED AAHIL PARSON

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## EDUCATION

### PES University

Expected June 2027

*B.Tech in Computer Science and Engineering*

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

## 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 developed a hybrid anomaly-detection pipeline using a Bidirectional GRU Autoencoder and One-Class SVM, covering preprocessing, trajectory windowing, training, and 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.
- Built and deployed a full-stack contract-analysis platform for PDF clause extraction, RAG retrieval, multi-provider LLM risk analysis, and report export on Vercel/Railway; built evaluation harnesses over 90 benchmark clauses, achieving 80%+ top-3 retrieval hit rate, 90%+ contract-type precision, and 100% metadata/schema validity.

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

*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.

### Mini HDFS Simulation [Code](#)

*Python, TCP Sockets, Multithreading*

- Large files need to survive node failure without any single machine holding a complete copy.
- Implemented the complete Namenode controller for 2 MB chunking, metadata, chunk placement, replication, and heartbeat-based coordination across two Datanodes; added failure handling, file reconstruction, and hash-based download verification, then demonstrated the end-to-end distributed storage system to faculty.

### InsureIt - Parametric Insurance Platform [Code](#)

*React Native, Expo, React, TypeScript, FastAPI, PostgreSQL, Firebase*

- Travel disruption claims take weeks of paperwork to settle even when the triggering event is objectively verifiable.
- Led development of the Android-first mobile application and built the web frontend foundation, implementing policy, disruption, claims, payout, authentication, and user-dashboard workflows; integrated weather and claims-processing services and contributed to automated UPI payouts.

### Real-Time Server Monitoring with Kafka and Spark [Code](#)

*Apache Kafka, Apache Spark, Python, ZeroTier, Zookeeper*

- Resource exhaustion on distributed machines is only visible in post-mortem logs, long after the incident.
- Configured and operated Kafka and Zookeeper, routing CPU, memory, network, and disk telemetry over ZeroTier to two Spark-enabled machines; enabled near-real-time observability with 30-second windows, 10-second slides, and threshold alerts for resource spikes, memory saturation, potential DDoS activity, and disk thrashing.

## TECHNICAL SKILLS

**Languages:** Python, C++, JavaScript, TypeScript, SQL, HTML/CSS

**Frameworks & Data:** FastAPI, Flask, React, React Native, Expo, PostgreSQL, Redis, Celery, Supabase, Firebase, REST APIs

**AI & ML:** PyTorch, scikit-learn, NLP, RAG pipelines, LLM APIs, AWS Bedrock, embeddings, vector search (ChromaDB), sentence-transformers, evaluation harnesses, GRU/LSTM, anomaly detection

**Systems & Tools:** Docker, Apache Kafka, Apache Spark, Git/GitHub, Linux, TCP sockets, multithreading, distributed systems, Railway, Vercel

## ACHIEVEMENTS

- Top 150 of ~3,000 teams, Atos Srijan 2026 (Nimbus AI cloud-security copilot).
- 96th of 1,380 teams, Guidewire DEVTrails 2026 (InsureIt).