# K MUSADIQ PASHA

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## EDUCATION

**B.Tech, Computer Science and Engineering (AI & ML)**, PES University, Bengaluru 2022 – 2026
CGPA: 8.26/10

## EXPERIENCE

**Software Developer Intern**, Aptos India, Bengaluru Jul 2026 – Present
*Product Engineering on Aptos's Integration Service Layer (ISL), an AWS-native retail integration platform*

- Built features for a Python/LangGraph multi-agent LLM tool that designs, tests and deploys TypeScript AWS Lambda services via Terraform, with a human approval gate before every deploy.
- Built quality gates for AI-generated code (lint, type-check, Jest coverage) with an automatic repair loop, raising a pilot service from 86% to 90% coverage; wrote 400+ pytest tests for the tool, run automatically in CI.
- Hardened security: secret masking, a shell-injection fix, input validation, centralized AWS credentials.
- Prototyped Okta SSO sign-in with role-based access control, restricting dashboard views by user role.
- Benchmarked LLM reasoning-effort settings on AWS Bedrock, cutting token usage with similar output quality.
- Developed the React/TypeScript (Redux Toolkit) front end of a logs-and-metrics observability dashboard.
- Delivered a mock Lambda + EventBridge service in 5 days to unblock a partner team's integration work.

**Research Intern**, CDSAML, PES University, Bengaluru Jan 2026 – May 2026

- Built a judgment prediction system for Indian Supreme Court cases using RAG and fine-tuned Llama 3.1 8B.
- Curated a 700+ case dataset; generated outputs reached 0.85 BERTScore F1 on held-out cases.

## SKILLS

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| **Languages:** | Python, TypeScript, JavaScript, SQL, C++, Bash |
| **AI / LLM:** | LangGraph, LangChain, RAG, multi-agent systems, LLM APIs, PyTorch |
| **Cloud / DevOps:** | AWS (Lambda, EventBridge, Bedrock, S3, DynamoDB, IAM), Terraform, Docker |
| **Web:** | React, Redux Toolkit, Node.js, Express, REST APIs, Okta SSO, RBAC |
| **Databases:** | MySQL, MongoDB, Neo4j |
| **Tools:** | pytest, Jest, ESLint, Git, CI/CD |
| **Core CS:** | Data Structures & Algorithms, OOP, Operating Systems, DBMS, Computer Networks |

## PROJECTS

**Team Calendar App** | *React, Node.js, Express, MongoDB, Docker* GitHub

- Built a shared team calendar with REST APIs for event CRUD, search, date-range and upcoming-event queries.
- Containerized the React client, Express API and MongoDB as separate services with Docker Compose.

**Spotify DBMS: Music Streaming App** | *React, JavaScript, MySQL* GitHub

- Designed a normalized MySQL schema (users, artists, albums, tracks) with foreign keys and cascading deletes.
- Implemented multi-filter SQL search (title, artist, album, genre, year) and an admin dashboard with FK checks.

**ReTweetify: Turkish Hate-Speech Moderation** | *mBERT, LoRA/PEFT, SHAP, Llama 3* GitHub

- Fine-tuned 4-bit multilingual BERT with LoRA on 32k Turkish tweets, reaching 0.856 macro-F1 on the test set.
- Explained predictions with token-level SHAP; used Llama 3 to rewrite hateful tweets into non-offensive versions.

**KG-Enhanced RAG for Crime Film Analysis** | *Neo4j, Llama 3.1, LangChain, Ollama* GitHub

- Combined Neo4j knowledge-graph retrieval with LLM generation for explainable answers over crime-film scripts.
- Evaluated on 50 hand-annotated QA pairs across five question types.

## PUBLICATIONS

- "Beyond Loyalty and Betrayal: A Knowledge Graph-Enhanced RAG System for Crime Film Insights and Analysis", ICTIS 2025, Springer LNNS (published Jan 2026). DOI
- "HyperGNNs for Multi-Modal Classification and Severity Analysis of Neurodegenerative Disorders", ICTIS 2026 (to appear).

## ACHIEVEMENTS

- LeetCode Knight: 1900+ contest rating (top 3.7%), 1250+ problems solved.
- Pre-University (PCMC): 98.5%, Karnataka state rank 8.