MUHAMMAD ABUBAKAR

Software Engineer | Full-Stack Developer | Django • Angular • AI-Enabled Systems

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SUMMARY

Software Engineer with hands-on experience building scalable full-stack applications using **Django, Angular**, and **React**. Developed AI-powered platforms, integrated **large language models (LLMs)**, and fine-tuned NLP models for **automation tasks**. Proven track record of delivering production-ready features, debugging in **agile teams at NETSOL**, and deploying apps on modern cloud platforms like **GCP and Vercel.** Solid foundation in both backend systems and **machine learning**, with strong focus on real-world **problem-solving**.

EXPERIENCE

NETSOL Technologies — Internship Duration: [June 2024– Aug 2024]

- Developed and optimized user interfaces using **Angular**, **enhancing performance** and **user experience** across key features.
- Collaborated with cross-functional teams to debug, troubleshoot, and implement high-quality code.
- Gained hands-on experience with the **Software Development Life Cycle (SDLC)**, including requirement **analysis, testing,** and **deployment.**

EDUCATION

FAST National University of Computer and Emerging Sciences Duration: [Sep 2021– Jun 2025]

Bachelor of Science in Computer Science

TECHNICAL SKILLS0

Languages & Scripting: Python, C++, JavaScript, TypeScript, SQL, Bash
Frameworks & Libraries: Angular, Django, scikit-learn, TensorFlow, Hugging Face Transformers, OpenCV
Web & API Tools: HTML, CSS, Vite.js, Postman, RESTful APIs
Databases: MySQL, PostgreSQL, Supabase
Dev Tools & Version Control: Git, GitHub, VS Code, TRAE-IDE (AI-powered editor)
Cloud & Deployment: Google Cloud Platform (GCP), Vercel, Render, Linux VM, Apache, Nginx
ML & AI Experience: FLAN-T5, BART, VGG19, KNN, SVM, PCA, Data Augmentation, Feature Engineering

PROJECTS

Final Year Project – Skill Map| *Django, Angular, PostgreSQL, Render, Flan T5, KNN Classifier*

- Developed an AI-driven platform for team collaboration and task management.
- Fine-tuned **FLAN-T5** to generate task descriptions from project specs, cutting manual work and improving consistency.
- **Training loss reduced from 38.32 → 0.22**, indicating strong model convergence.
- Built a custom **KNN classifier** for task type (Frontend, Backend, etc.) and developer level (Junior, Mid, Senior).
- Integrated **Gemini API** to automate task segregation and intelligent team formation.
- Led ML pipeline development, improving task assignment accuracy and reducing manual overhead.

PDF Question-Answering Web App| *React, Django, Google Gemini, FAISS, REST API*

Developed a full-stack AI-powered web application that allows users to upload PDF documents and query their content. Utilized **Google's Gemini Pro** for **text embeddings** and **responses**, and **FAISS** for fast semantic similarity search. Designed the backend in Django REST Framework and built the frontend using **React**. Implemented persistent vector storage with FAISS and enabled efficient **retrieval-augmented generation (RAG)** workflow for question-answering.

Dialogue Summarization Model Fine-Tuning using BART and PyTorch

- Fine-tuned **BART** transformer model using **PyTorch** and **Huggingface** Transformers on the **SAMSum** dialogue summarization dataset.
- Built a custom **PyTorch** Dataset and optimized training with **AdamW** optimizer, implementing efficient training, validation, and inference pipelines.
- Achieved automated text summarization by designing and executing a complete end-to-end NLP pipeline, including tokenization, batch processing, and model evaluation.

Gender Classification on MIT-IB Dataset | Python, OpenCV, scikit-learn, TensorFlow, VGG19, SVM

- Built a binary gender classifier using **feature fusion** of VGG19 and handcrafted features.
- Applied data augmentation, **PCA** for dimensionality reduction, and trained a **Linear SVM** classifier.
- Handled class imbalance through preprocessing and evaluated with **10-fold cross-validation**.
- Achieved **76.8% accuracy**, **79.3% precision**, **82.1% recall**, and **80.7% F1-score**.