

Hamza Jalil

HPC Research Assistant @ NHR@FAU · DFG Mod4Comp | MSc Data Science, FAU Erlangen | Energy Modeling · ML Systems
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Summary

I'm a computer scientist and MSc Data Science student at FAU Erlangen-Nürnberg, currently working as a research assistant (HiWi) at NHR@FAU on Subproject 3 of the DFG-funded Mod4Comp research unit (FOR 5880) — developing simulator frameworks for runtime and energy prediction of massively parallel MPI programs, under the supervision of Dr. Ayesha Afzal. Before academia, I spent 2+ years as a software engineer at Dubizzle Labs (Bayut, OLX, Zameen) building production systems at scale — Elasticsearch pipelines querying 12M+ records in under a second, ML-powered microservices transcribing 10,000+ daily calls, AI analytics modules via OpenAI APIs, and a finance automation layer syncing 1.7B+ PKR in Oracle NetSuite transactions. My technical interests sit at the intersection of HPC systems, energy-efficient parallel computing, and applied machine learning.

Experience

Erlangen National High Performance Computing Center (NHR@FAU)

Erlangen, Bavaria, Germany

Student Research Assistant (HiWi)

April 2026 – Present

- Contributing to simulator framework development for MPI program runtime and energy prediction by building and validating data pipelines that process parallel execution traces, supporting SP3's goal of accurate pre-execution energy forecasting for massively parallel HPC workloads.

Dubizzle Labs (Bayut · OLX · Zameen)

Lahore, Pakistan

Software Engineer

April 2024 – September 2025

- Built Elasticsearch-powered KPI dashboards with drill-downs, histograms, and trajectory views by engineering nested aggregation pipelines over 12M+ records, achieving sub-second query performance for real-time sales and ops reporting across Bayut, Dubizzle, and OLX.
- Developed AI analytics modules for client, opportunity, and report analysis by integrating OpenAI APIs into Jarvis CRM, eliminating manual performance summaries and accelerating decision cycles across 3 business units.
- Improved field task tracking accuracy by 90% by building a real-time GPS movement tracking system paired with a Roster Management module.
- Optimized dashboard load times by developing a Parallel Threading Widget Helper and custom Jarvis BI views, reducing frontend rendering bottlenecks across high-traffic reporting modules.
- Automated revenue workflows for Motors by Dubizzle and OLX by integrating Slack, Stripe, Tabby, Tamara, and Exchange Rate APIs with Amazon and Noon voucher flows.

Dubizzle Labs

Lahore, Pakistan

Associate Software Engineer

August 2023 – March 2024

- Designed Ingress, an ML-powered microservice for multilingual call transcription and translation using RabbitMQ, OpenAI, and custom ML models, processing 10,000+ daily sales calls and enabling automated quality scoring.
- Automated finance reconciliation between Jarvis CRM and Oracle NetSuite, reconciling 1.7B+ PKR in transactions with zero manual intervention.
- Integrated Checkout.com with full 3D-secure compliance and automated surplus payment tagging in Polaris CRM.
- Developed end-to-end upselling flows covering product, cart, order, credit, and checkout stages, boosting sales conversion rates.
- Migrated 50,000+ users and agencies to Bayut.sa using optimized batched MySQL migration queries with zero data integrity issues.

Al-Khawarizmi Institute of Computer Science (KICS), UET Lahore

Lahore, Pakistan

Machine Learning Intern

July 2021 – September 2021

- Built a CNN pipeline for impulsive acoustic event detection by converting raw audio into 2D spectrograms, enabling automated sound classification and localization.
- Configured a vSphere dual-OS server with VMRC remote access for a multi-researcher ML experiment environment.

Education

FAU Erlangen-Nürnberg

Erlangen, Germany

Master of Science — Data Science

October 2025 – Present

COMSATS University Islamabad

Lahore, Pakistan

Bachelor's Degree — Computer Science

2019 – 2023

Skills

Elastic Stack (ELK) · Elasticsearch · Ruby on Rails · Python · Next.js · TypeScript · React · Tailwind CSS · RabbitMQ · OpenAI API · MySQL · Git · Docker

Certifications

- Python Programming for Advanced Video Analytics Training Workshop
- Python Data Science Toolbox (Part 1 & 2)
- Introduction to Python
- Image Processing in Python