Faisal Hakimi | AI Engineer & Quantitative Researcher

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Profile

AI engineer and quantitative researcher working at the intersection of probabilistic modeling, optimization, and reliable generative systems. Experienced in designing low-latency vision pipelines, evaluating LLM hallucination behaviour, and developing secure backend architectures. Skilled in translating stochastic models—Bayesian optimization, evolutionary algorithms, and regime-aware methods—into deployable, production-grade systems.

Experience

PTCL Group **Islamabad**
Technology Intern *2025*
- Automated ETL tasks and improved ingestion workflows.
- Added monitoring metrics to strengthen analytics pipelines.

IMSciences **Peshawar**
Research Assistant *2025*
- Built statistical pipelines to evaluate hallucination behaviour in LLMs.
- Performed distributional tests on error frequencies and output variance.
- Developed reproducible research artifacts for academic submission.

Bright Network / IEUK **Remote (UK)**
Product Intern *2024*
- Contributed to a 6-month roadmap redesign informed by $3{,}900+$ datasets.
- Improved platform engagement by $\sim 20\%$ through system optimization.

NIC **Peshawar**
Founder *2024–Present*
- Built a secure crowdsourced security platform using Django + PostgreSQL.
- Designed workflows for vulnerability intake, triage, and structured reporting.

Education

IMSciences **Peshawar**
B.Sc. Computer Science –
- CGPA: $3.75/4.00$
- Coursework: Algorithms, Probability, Optimization, Machine Learning

Research & Advanced Projects

Regime-Aware Cointegration Trading: **Enhancing Cointegration-Based Basket Trading with Multi-Asset Bayesian and Swarm Optimization**
Designed a regime-aware portfolio allocation algorithm using Bayesian optimization and swarm-intelligence heuristics. Addressed structural overfitting in classical cointegration tests, incorporating cross-regime stability checks for improved out-of-sample performance.

LLM Hallucination Analysis: **Empirical Evaluation of Hallucination Behaviour in Large Language Models**
Built statistical evaluation pipelines to measure hallucination frequencies across datasets. Performed distributional comparisons, prompt-sensitivity analysis, and reliability scoring for upcoming academic publication.

AI Governance: **Algorithmic Policy & Responsible AI Frameworks**
Studied policy constraints and governance structures for safe deployment of generative AI. Connected model-level reliability metrics to system-level ethical guidelines and lifecycle management.

Genetic Algorithm Scheduler: **University Scheduling System using Evolutionary Search**
Developed a genetic algorithm engine using assignment variables $x_{i,t}$ to generate conflict-free timetables. Integrated a full-stack interface for real-time schedule generation under hard and soft constraints.

Real-Time Vision System: **YOLO-Based Waste Classification Pipeline**
Engineered a computer-vision system achieving ~ 10ms inference. Evaluated using mAP, class precision, and latency profiling. Deployed via Streamlit for interactive demonstrations.

Publications & Research

In Preparation: *Enhancing Cointegration-Based Basket Trading with Regime-Aware Multi-Asset Bayesian and Swarm Intelligence Optimization*
Focus: Quantitative Finance – Designing robust asset allocation algorithms that solve overfitting issues in traditional statistical tests through regime-switching models and hybrid optimization techniques. Expected submission: Q2 2025.

Ongoing Research: *Quantifying Hallucination Rates in Large Language Models: An Empirical Framework*
Co-authored investigation of factual accuracy and reliability metrics across multiple LLM architectures, developing statistical frameworks for AI safety evaluation.

Technical Skills

Programming: Python, JavaScript, SQL

ML & Research: PyTorch, TensorFlow, Hugging Face, Scikit-learn, Bayesian optimization

Mathematics: Probability, Statistics, Optimization, Stochastic Modeling

Computer Vision: YOLO, real-time inference, evaluation using mAP

Backend: Django, FastAPI, PostgreSQL, Docker, REST APIs

DevOps: Git, CI/CD, Docker Compose

Data: NumPy, Pandas, SciPy

Other: Rasa, Streamlit, GitHub

Certifications

Data Science: AtomCamp — EDA, visualization, statistical modeling

Advance AI: AtomCamp — deep learning, CV, NLP, LLMs

Additional Information

Languages: English (fluent), Urdu (native)

Links: github.com/Faisalhakimi22 | linkedin.com/in/faisal-hakimi55

References available on request.