Abdullah Bin Faiz

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EDUCATION

National University of Computer and Emerging Sciences 08/2019 — 06/2023
Bachelor of Science: Computer Science Islamabad, Pakistan

- Cumulative GPA: 3.69/4.00

INDUSTRY EXPERIENCE

CureMD Inc. Lahore, Pakistan
Senior AI Research Engineer 07/2023 — Present

- **Hybrid Agents' Knowledgebase Intelligence (HAKI)**
  Proposed a hybrid extension of BDI architecture by integrating learning-based behavior adaptation and lookahead mechanisms for concrete planning; employed language models for deep reasoning and depth-first search for optimal decision paths; developed the HAKI Python framework enabling autonomous decision-making in classical BDI agents enabling seamless integration into new or existing multi-agent environments.
- **Medical Metaverse**
  Designed a scalable multi-agent digital twin system supporting over 100,000 concurrent doctor-patient agents using the HAKI framework; implemented patient agents that gather chronic disease and disease trajectories predictions and proactively alert physician agents for evaluation; developed doctor agents that evaluate patients through eCQM and USPSTF guidelines and provide adaptive treatment plans and recommendations; achieved throughput of 70,000 patient simulations per second for disease outcome modeling.
- **HAKI Agent Factory**
  Led development of an automated multi-agent system codebase generation system built atop the HAKI agent framework using Deepseek-V3, Qwen3-Coder, and GLM-4.5; employed a hierarchical agent architecture emulating developer, lead, and product manager roles for effective task decomposition and coordination; created a web-based interface enabling non-technical users to design and deploy agent systems and integrate external workflows (Langchain and n8n) for development of intelligent agent ecosystems.
- **Early Prediction of Chemotherapy Outcomes**
  Collaborated for an internal research project into feasibility of chemotherapy treatment outcome prediction; developed an early prediction framework for chemotherapy treatment outcomes using Random Survival Forests (RSF) integrated with language model-driven phenotype and outcome label extraction from oncological notes; implemented Retrieval-Augmented Generation (RAG) and Critic-Agent feedback look for reliable extraction of cancer phenotypes and toxicity/progression labels; trained on 3,409 breast cancer patient EMRs achieving a C-index of 0.731, accuracy 72.3%, and F-1 score 72.4% in treatment failure prediction; extended modeling to colon, lung, prostate cancer, and multiple myeloma with consistent performance (0.66–0.76 C-index).
- **Cancer Phenotypes Extraction system**
  Designed a language model-based ontology system for extraction of breast cancer phenotypes from unstructured clinical SOAP notes; integrated rule-based NCIt ontology matching, semantic reranking using mxbai embeddings, and a ReAct-style reasoning agent for interpretability; validated across Llama 3.1 8B, Mistral v0.2, GPT-4, and rule-based ontology only system for breast cancer phenotypes extraction; achieved accuracy of 92.3% on GPT-4 and 86.1% on Llama 3.1 8B.

WORKSHOPS

- A. B. Faiz, A. K. Shehzad, A. Afzal, M. Tariq, M. Siddiqi, M. Noor, S. Hashmat, M. Farooq (presenter). "Extracting Breast Cancer Phenotypes from Clinical Notes: Comparing LLMs with Classical Ontology Methods." *Proceedings of 22nd International Conference on Artificial Intelligence in Medicine – Artificial Intelligence in Oncology Workshop*, 2024.

ACADEMIC PROJECTS

- **Novozymes Enzymes Thermostability Prediction**
  Developed a statistical algorithm for predicting the optimal melting temperature of a wildtype enzyme with 2,413 different single point mutations; computed changes in Gibbs Free Energy secondary protein structures predicted using AlphaFold 2; experimented with various amino acid substitution matrices including PAM, BLOSUM, Wheelan And Goldman (WAG), and LG; applied an adjusted sigmoid function to caluclate ranks of important columns using Gibbs Free energy, LG substitution matrix values, and B-factor; achieved Spearman's correlation of 0.42 on testing dataset.

- **GoogleTalk**
  Designed a service which allows users to control Google applications (Sheets, Forms, Gmail) through their voice; applied Whisper for speech-to-text extraction; finetuned a Spacy Named Entity Recognition (NER) model on custom dataset for extraction of actions and values used in determining which application to control and how; developed a web browser extension with voice recording capability for ease of access and use.

TEACHING EXPERIENCE

National University of Computer and Emerging Sciences 07/2022 — 06/2023
Lab Demonstrator Islamabad, Pakistan

- Supervised practical labs, guided students in lab work, and conducted evaluations.

National University of Computer and Emerging Sciences 07/2021 — 06/2023
Teaching Assistant Islamabad, Pakistan

- Assisted supervisors in designing assessments, and supported students with challenges in coursework.
- Participated in Design and Analysis of Algorithms, Data Structures, Object-Oriented Programming, and Computer Organization & Assembly Language.

AWARDS

NUCES – Dean's List Islamabad, Pakistan
Seven times consecutive academic achievement recognition. 06/2023

VOLUNTEER EXPERIENCE

- Co-organized the 24th IEEE International Multitopic Conference.
- Served as Research Secretary at the IEEE Computer Society.
- Served as a Buddy Programme at the FAST Computing Society.

STANDARDIZED TESTS

- **TOEFL:** 109 (overall score) – 26R27L30S26W 25/10/2025

SKILLS

- **Programming Languages:** Python, C/C++, Java
- **Tools:** Git, GNU/Linux, Docker, Milvus, Nginx, OpenMPI
- **Frameworks:** Pytorch, Scikit-Learn, Numpy, Pandas, Scipy, Matplotlib, Transformers, Langchain, Langgraph, Biopython, CUDA, TensorRT, Apple MLX