MD. Khalid Hasan

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Profile

Computer Science and Engineering undergraduate at United International University, focused on Artificial Intelligence, Machine Learning and research. I build machine learning and algorithm projects from the ground up, through both coursework and independent work, and enjoy turning new ideas into working solutions. Seeking opportunities in AI/ML, research, R&D and academia where I can contribute and keep growing.

Research Interests

Main: Natural language processing and large language models for low-resource (Bangla) languages, including retrieval-augmented generation, LLM evaluation, and multilingual NLP and machine translation.
Also: Explainable AI, LLM agents and multi-agent systems, multimodal learning, speech processing, reinforcement learning, efficient ML, and information retrieval.

Education

United International University (UIU) Jan 2024 – Jan 2028 (expected)
B.Sc. in Computer Science and Engineering *Dhaka, Bangladesh*

- CGPA: 3.67 / 4.00 (as of Nov 2026)
- Relevant coursework: Data Structures and Algorithms, Object-Oriented Programming, Database Systems, Operating Systems, Software Engineering, Artificial Intelligence, Linear Algebra, Probability and Statistics

Selected Projects

Research Radar | *Python, FastAPI, scikit-learn, JavaScript* github.com/khalidhasan7343/research-radar

- Built a research-trend tool covering 22 venues (NeurIPS, ICML, ICLR, ACL and others) and arXiv, collecting paper metadata from OpenAlex, Semantic Scholar and OpenReview with cross-source deduplication.
- Added CPU-only topic modelling (TF-IDF + SVD), trend forecasting, idea novelty scoring and a web dashboard with scheduled updates through GitHub Actions.

ML Research Handbook | *English and Bangla* github.com/khalidhasan7343/ml-research-handbook

- Wrote a 101-page bilingual handbook (34 sections) on machine learning, research methodology and paper analysis, released as PDF and DOCX.
- Covered research gap detection, critical paper analysis, novelty analysis and reproducibility, with an end-to-end case study of a real paper.

Maze Mind | *Python, Pygame, scikit-learn, SQLite* github.com/khalidhasan7343/maze_mind

- Built a maze escape game with an A* hunter AI, randomised-DFS maze generation and BFS distance checks, logging every round to SQLite.
- Trained KNN skill classification (drives adaptive difficulty), K-Means playstyle clustering and a logistic regression win-probability model, retrained from logged games.
- Win-probability model reached 86.54% accuracy and 0.858 ROC AUC on 104 held-out synthetic snapshots; covered by 123 automated tests.

Algorithm Atlas | *Python, C++, NumPy, pytest* github.com/khalidhasan7343/algorithm-atlas

- Implemented and documented 200 algorithms from scratch (97 data structures and algorithms, 99 machine learning, 4 AI search) in Python, 101 also in C++, with complexity analysis.
- Wrote over 1,800 pytest tests with continuous integration through GitHub Actions.

Technical Skills

Programming	Python, C, C++, Java, JavaScript, TypeScript, SQL, MATLAB, Bash
ML and Data	PyTorch, TensorFlow, Keras, scikit-learn, XGBoost, LightGBM, Hugging Face Transformers, NLTK, spaCy, NumPy, pandas, Matplotlib, Seaborn
LLM and RAG	LangChain, LlamaIndex, Ollama
Web	React, Next.js, TanStack Start, Node.js, Express, REST APIs
Databases	PostgreSQL, MySQL, MongoDB, SQLite, FAISS (vector search)
Tools	Git, GitHub Actions, Linux, Docker, FastAPI, pytest, Jupyter, Google Colab, Kaggle, LaTeX, Typst
Languages	Bangla (native), English (fluent)

Technical Writing

- "I'm Still an Undergraduate. Here's Why I Wrote a Machine Learning Research Handbook." *Medium*, Oct 2026. The motivation behind the ML Research Handbook listed under Projects.

Achievements

- **Scholarships**
  - **Merit Scholarship (25%)**, UIU, Jan 2024 – Present. Awarded every trimester for results in the top 10%.
  - **Tuition Waiver (25%)**, UIU, Jan 2024 – Present. Awarded for HSC results; renewed by keeping CGPA above 3.50.
- **Professional Development Certificates**
  - *Grameenphone Academy*, 2026
    - GenAI & Prompt Engineering; AI Workflows and Agents; Expert AI Generalist
    - Training in Corporate Presentation Skills and Professional Communication