

Amaan Khan

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EDUCATION

University of Illinois at Urbana-Champaign

Masters of Computer Science

Champaign, IL

December 2027

University of Illinois at Urbana-Champaign

B.S. in Information Sciences & Minor in Computer Science

Champaign, IL

May 2025

Relevant Coursework: Artificial Intelligence, Deep Learning, Computer Vision, Machine Learning, Software Engineering, Database Systems, Data Mining, Algorithmic Market Microstructure, Extended Reality, Machine Perception, Data Visualization, Data Management, Database Design & Prototyping, Project Management.

PROFESSIONAL EXPERIENCE

Data Science Course Assistant

STAT 107 & CS 411 - UIUC

August 2023 – Present

Champaign, IL

- Resolved **1000+** support tickets assisting students in **data science**, **ML** and statistical modeling.
- Developed and refined **Jupyter notebook labs** and **microprojects** on **AI**, **data analysis** and visualization.
- Collaborated with instructors to enhance **curriculum design and assessments** to ensure clarity and consistency.

Machine Learning Researcher

University of Illinois Urbana-Champaign

Jan 2024 – May 2024

Champaign, IL

- Led development of a **web-based machine learning application** using financial data to predict loan approvals.
- Built an **ETL pipeline** and implemented **PyTorch models** evaluated on fairness and accuracy metrics.
- Developed a **full-stack interface** with **JavaScript** and **SQL** for interactive predictions and data visualization.

Software Engineer

FOUNDERS

August 2021 – August 2023

Champaign, IL

- Optimized the **Founders' website** using **Python**, **HTML**, **CSS**, and **JavaScript**, increasing user engagement.
- Developed automation features to streamline **event registrations**, improving efficiency by **40%**.
- Built and maintained **scalable backend services** using **Python** and **Flask**, enhancing system performance.

PROJECTS

Kalshi Prediction Market Analytics Platform | *Next.js, React, TypeScript, Python, FastAPI*

July 2026

- Processed and analyzed **1,000+** live prediction markets with real-time data updates and analytics.
- Achieved **sub-second** API response times by optimizing backend queries and database indexing.
- Built a responsive analytics dashboard with **10+** interactive charts for performance and market insights.

MiniAsta Paper Reranking System | *Python, Semantic Scholar API, LLMs, NLP*

May 2026

- Built a paper reranking pipeline that retrieved and rescored **50+** papers per query using user-defined constraints.
- Used an **LLM scorer** to evaluate topic fit, method alignment, and practical usefulness across candidate papers.
- Combined retrieval relevance and constraint satisfaction into a weighted formula for higher-quality results.

Computer Vision Traffic Risk Estimation | *Python, OpenCV, YOLO, Homography, Tracking*

April 2026

- Built a vision pipeline to detect, track, and analyze road users across **1000+** traffic video frames.
- Used **YOLO** and multi-object tracking to extract vehicle and pedestrian trajectories with frame-level consistency.
- Applied homography calibration to map coordinates into bird's-eye-view for **trajectory-based risk analysis**.

SKILLS

Programming: Python, R, C++, Java, SQL, Bash

Deep Learning: Neural Networks, CNNs, RNNs, Transformers, GANs, Autoencoders

NLP & Computer Vision: BERT, GPT, OpenCV, Image Segmentation, Object Detection

ML Frameworks: TensorFlow, PyTorch, Scikit-learn, XGBoost, Keras, LightGBM

Big Data & Cloud: Apache Spark, AWS (S3, SageMaker), Google Cloud (Vertex AI, BigQuery)

MLOps & Deployment: Model Serving, Flask, FastAPI, Docker, Kubernetes, Airflow