

MUHAMMAD ROHAN KHAN

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Education

Drexel University, College of Computing and Informatics

Bachelor of Science in Computer Science

Concentration in Artificial Intelligence and Machine Learning and Software Engineering

Expected Graduation: 2027

Philadelphia, PA

GPA: 3.65

Relevant Coursework: *Data Structures, Systems Programming, Systems Architecture, Advanced Programming Tools, Linear Algebra, Discrete Mathematics, Mathematical Foundations of CS, Multivariate Calculus, Introduction to Software Engineering*

Technical Skills

Programming Languages: *Python, C, Java, JavaScript, HTML5, CSS*

Frameworks and Libraries: *React JS, Node.js, TensorFlow, Keras, Flask, Pandas, NumPy, Scikit-Learn, Matplotlib*

Cloud Platforms and Developer Tools: *Amazon Web Services, Google Cloud Platform, Firebase, Git, VS Code, IntelliJ*

Experience

Bristol Myers Squibb

Cloud Developer and AI Engineering Intern

Lawrenceville, NJ

September 2025 – March 2026

- Developed a Retrieval-Augmented Generation (RAG) chatbot leveraging AWS Bedrock, S3, and OpenSearch Serverless to build a scalable pipeline that converts 5,000+ documents into vector embeddings for semantic search and query responses
- Engineered a production LangGraph for internal BMS documentation Q&A and CloudFormation template generation; instrumented with LangSmith tracing and deployed on AWS AgentCore, boosting knowledge retrieval efficiency by 70%
- Deployed the agent across BMS's internal website and implemented an MCP server for secure tool access to internal systems; automated delivery with CloudFormation + CI/CD and supported production infrastructure

Ausborn Lab, Drexel University – Brainstem Locomotor Control

Computational Neuroscience Research Assistant

Philadelphia, PA

April 2025 – June 2025

- Engineered a data-driven neuron simulation in Python using NEURON to model descending command systems for context-specific locomotor behaviors relevant to spinal cord injury recovery and deep brain stimulation
- Analyzed 50+ soma vs. SIZ current injection experiments, optimizing passive property configurations (R_a , g_{leak} , C_m) and automating visualization pipelines to improve reproducibility by 40%

Aura: College Social Networking and Event Platform

Chief Technology Officer

Philadelphia, PA

October 2024 – March 2025

- Launched Aura to unify disconnected campus engagement reported by 85% of surveyed students, developing real-time event discovery and geotagged memory tools that secured 1200+ beta users, validating market demand pre-launch
- Directed the full software lifecycle, designing and implementing a React Native front end from high-fidelity Figma prototypes to deliver a consistent UI/UX across 30+ screens - earning a 4.5/5 beta user satisfaction rating
- Architected the backend infrastructure with Node.js, Express.js and MongoDB on AWS EC2, implementing auto-scaling and load balancing to support 10000+ concurrent users, achieving 99.9% uptime and reducing server costs by 30%

Projects

LinguaSign AI: Sign Language Recognition System | *Winner, Philadelphia CodeFest 2025*

- Designed and implemented dual data pipelines for ASL recognition, leveraging MediaPipe to extract 21 hand landmarks from an 11000-image, 29-class dataset and constructing a 63-dimensional feature vector for model input
- Formulated advanced feature engineering techniques - such as Procrustes analysis, relative angle computation, and PCA — to capture nuanced hand pose representations, enhancing model generalization and robustness
- Built and trained a custom Artificial Neural Network (ANN) using TensorFlow, achieving 97% classification accuracy on normalized hand landmark features for real-time ASL detection

Pigeon Mesh: Decentralized Crisis Communication System | *NexHacks, Carnegie Mellon University 2026*

- Innovated an offline emergency mesh communication platform using Bluetooth and Wi-Fi Direct, supporting multi-hop relay communication across 50+ nearby devices for crisis scenarios where cellular infrastructure fails
- Crafted an Express.js command dashboard delivering live incident mapping, mesh visualization across 20+ peers, and 3-second auto-refresh; enabled gateway-synced uploads in < 2s after connectivity returns for emergency coordination

Awards & Honors

Winner Philadelphia CodeFest 2025 – Won 3rd place for *LinguaSign AI*, a real-time sign language recognition system

ICPC North America Qualifier Drexel – Secured 2nd Place in algorithmic coding competition

Dean's List, Drexel University – Awarded for academic excellence for all quarters to date

A.J. Drexel Scholarship – Merit-based scholarship awarded for outstanding academic performance

Lead Student Philanthropy Ambassador, Drexel – Represented student body in advancing campus philanthropy efforts