Usman Khan

usmankhan.dev | usman@usmankhan.dev | **US Citizen** | linkedin.com/in/khanu | github.com/ukhan1219

Education

University of Central Florida — Orlando, Florida
B.S. in Computer Science 3.8/4.0 GPA — *Expected Graduation: December 2025*

Relevant Coursework: Algorithms in Machine Learning, Artificial Intelligence/Machine Learning, Robot Vision, Matrix and Linear Algebra Cybersecurity, Computer Vision, Computer Logic, Theory of Computation, Discrete Mathematics, Compilers, Systems Software, Computer Architecture

Technical Skills

Languages: Python, C++, SwiftUI, Go, OCaml, Java, C, TypeScript, JavaScript, SQL/NoSQL, R, PHP
Frameworks: PyTorch, Keras, TensorFlow, NumPy, Pandas, SKLearn, Next.js, React, Node.js, Tailwind
Tools: Git, Github, Docker, Vercel, Linux, LaTeX, Prisma, Neo4J, Figma, Amazon Web Services, Google Cloud Platform
Other: Agile, REST, tRPC, GraphQL, CI/CD, Microservices, Automation, Distributed Systems, Data Pipelines, Scalability

Work Experience

Software Engineering Intern — Aug 2024 – Present
Vcom3D *— Python, TensorFlow, OpenCV, Raspberry Pi 5, Meta Quest 3, BioGears (UW), C++, XML* — *Orlando, Florida*

- Built **pose tracking** models using **TensorFlow** on **Raspberry Pi**, boosting accuracy & reducing latency by **30%**
- Merged **BioGears** (University of Washington) for injury simulation, boosting training realism by **40%** across modules
- Created **AR/VR** apps on **Meta Quest** to support simulations ran by BioGears in a **distributed system architecture**
- Refined **system integration** across multiple components via **cross-functional collaboration**, slashing errors & streamlining updates

Machine Learning/AI Undergraduate Research Assistant — Apr 2024 – Present
University of Central Florida *— Python, TensorFlow, Neo4J, NumPy, SKLearn, NetworkX, Pandas* — *Orlando, Florida*

- Enforced **automated distributed data mining** algorithms using **AI/ML** via **Neo4J** for enhanced predictive analytics
- Applied **data mining** methods using **RandomForestRegressor** on a **DARPA dataset** (6.8M+ nodes) to detect illicit activity
- Devised scalable **distributed data pipelines** boosting **entity tracking** accuracy and speed by **30%** across datasets
- Deployed statistical methods for **performance optimization**, reducing processing time by **40%** for high-volume pipelines

Projects

Mantle | *SwiftUI, Python, PyTorch, Core ML, Transformers, Hugging Face, Metal (MPS), AWS EC2*

- Converted **Transformer** models (**Mistral**, **Llama**) from **PyTorch** to **Core ML** via Unified Conversion API
- Applied **Core ML compression** (quantization, pruning, palettization) shrinking models by **75%** while retaining accuracy
- Accelerated inference **25%** leveraging **Metal Performance Shaders (MPS)** optimization on **AWS EC2** instances
- Developed privacy-first **SwiftUI** app (**iOS 18+**) for **On-Device ML** inference, enabling offline AI chatbot functionality

Glance | *SwiftUI, Go, Firestore, Firebase Auth, Plaid API, Google Cloud Platform, Figma, XCTest*

- Architected a **budgeting app** using **SwiftUI** and a **Go** backend, achieving seamless **Plaid API** integration.
- Implemented secure authentication via **Firebase Auth** & managed sessions, supporting **200+ concurrent users** reliably
- Designed responsive UI/UX flows in **Figma** & built with **SwiftUI**, boosting user engagement metrics by **15%**.
- Enhanced data retrieval speeds by **40%** through strategic **caching** & optimized **Firestore** queries in the **Go** backend.

Fit | *MERN Stack: MongoDB, Express.js, React, Node.js, TypeScript, AWS Lightsail, Figma*

- Led **Agile software development** lifecycle of **Fit** app; deployed scalable application on **Amazon Web Services**.
- Evolved **distributed storage solutions** using **MongoDB** with **optimized query interfaces**, cutting CRUD times by **30%**
- Unified **Express.js/Node.js** backend with a **React** frontend, resulting in a **40%** improvement in API response speed
- Enabled efficient client and server-side rendering in **React/TypeScript**, reducing load times reliably

Mend | *MERN Stack: MongoDB, Express.js, React, Node.js, TypeScript, AWS Lightsail, Figma, OpenAI, auth.js, Tailwind, Vercel*

- Pioneered **Mend** app with **OpenAI API** for smart journaling; utilized **Agile** practices & launched on **Vercel**
- Developed a high-performance **React** frontend with **Tailwind CSS**, achieving **30% optimization** in load times
- Constructed a **scalable microservices architecture** backend & **MongoDB**, ensuring data **security** with **95%** uptime
- Optimized **auth.js** for **secure** login, refining Trello workflows & lifting retention and hosted on Vercel