Usman Khan

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Education

University of Central Florida — Orlando, Florida

B.S. in Computer Science 3.8/4.0 GPA — *Expected Graduation: December 2025*

Relevant Coursework: Data Structures and Algorithms, Algorithms in Machine Learning, Artificial Intelligence/Machine Learning, Robot Vision, Matrix and Linear Algebra, Calculus I-II, Statistics I-II, Physics I-II, Computer Networks, Cybersecurity, Computer Vision, Computer Logic, Database Systems, Object Oriented Programming, Theory of Computation, Discrete Mathematics, Compilers, Systems Software, Computer Architecture

Technical Skills

Languages: Python, Java, OCaml, C++, TypeScript, C, JavaScript, SQL, NoSQL, MongoDB, R, PHP, HTML, CSS
Frameworks: PyTorch, Keras, TensorFlow, NumPy, Pandas, MatPlotLib, 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

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

Glance | *t3 Stack: Next.js, React, tRPC, TypeScript, Prisma, Tailwind CSS, PostgreSQL, Gemini AI, Plaid, Polygon, Heroku*

- Directed **Glance** app creation, integrating **multiple distributed** third-party APIs: **Plaid, Gemini, & Polygon APIs**
- Engineered secure authentication using NextAuth and **ensured secure API integrations** with financial data via **Plaid**.
- Leveraged dynamic **Gemini AI** prompts for **automated data** insights, enhancing investment analysis quality by **25%**
- Developed efficient **tRPC** endpoints that improved API speed by **35%** while supporting a **scalable architecture**

StockBot | *Python, YFinance (Yahoo Finance), PineScript, TensorFlow, Keras, PyTorch, Pandas, Numpy, SKLearn, CRON*

- Built the **StockBot** tool using MCMC with Metropolis-Hastings for **automated** real-time S&P 500 futures trading
- Enhanced **scalable data pipelines** to support **real-time data processing** using **YFinance** and SKLearn, boosting accuracy by **20%**.
- Trained robust neural networks with **TensorFlow/Keras**, achieving **15%** optimization in trading signal precision
- Integrated a **TradingView** strategy tester to refine **real-time analytics** and improve decision-making.

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