

# 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, Statistics, Analysis of Computer Networks, Topics in Cybersecurity

## TECHNICAL SKILLS

**Languages:** Python, Java, OCaml, C++, TypeScript, C, JavaScript, SQL, MongoDB, PostgreSQL, Neo4J, R, PHP, HTML, CSS

**Frameworks:** PyTorch, Keras, TensorFlow, NumPy, Pandas, Matplotlib, SKLearn, Next.js, React, Node.js, tRPC, Tailwind

**Tools:** Git, Github, Docker, Vercel, Linux, LaTeX, Prisma, Heroku, Figma, Amazon Web Services, Google Cloud Platform

**Other:** Agile, REST, GraphQL, CI/CD, Microservices, JIRA

## 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/OpenCV** on **Raspberry Pi 5**, 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 3** to support the physiology simulations ran by BioGears in a VR environment.
- Refined **system integration** with Python/C++ tweaks, slashing errors & streamlining updates.

### Machine Learning/AI Researcher

Apr 2024 – Present

**University of Central Florida** — Python, TensorFlow, PyTorch, NumPy, SKLearn, NetworkX, Pandas Orlando, Florida

- Automated metadata analysis with **AI/ML** via **Neo4J**, uncovering foreign ownership signals.
- Devised temporal models with **RandomForestRegressor/NetworkX**, improving longevity forecasts.
- Engineered efficient **data processing algorithms** that boosted **entity tracking** accuracy and speed by **30%** across datasets.
- Deployed advanced **statistical methods** to reduce processing time by **40%** for high-volume pipelines.

## PROJECTS

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

- Led development of the **Fit** app as Lead Developer and Project Manager; designed in **Figma** and hosted on **AWS Lightsail**.
- Optimized **MongoDB** schemas and queries, cutting CRUD operation times by **30%** to accelerate development.
- 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 in **Figma** on **Heroku**, uniting **Plaid**, **Gemini**, & **Polygon** APIs.
- Engineered secure authentication using NextAuth and integrated financial data through the **Plaid API** for robust security.
- Implemented dynamic **Gemini AI** prompts that enhanced investment insights by **25%** for improved analysis.
- Developed efficient **tRPC** endpoints that boosted development efficiency and improved API speed by **35%**.

**StockBot** | Python, PineScript, TensorFlow, Keras, PyTorch, Pandas, Numpy, SKLearn, CRON

- Built the **StockBot** tool using MCMC with Metropolis-Hastings for real-time S&P 500 futures trading.
- Enhanced data pipelines by integrating the **Yahoo Finance API** with SKLearn, boosting model accuracy by **20%**.
- Trained robust neural networks with **TensorFlow/Keras**, lifting trading signal precision by **15%**.
- 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; crafted in **Figma** & launched on **Vercel**.
- Developed a high-performance **React/TypeScript** frontend with **Tailwind CSS**, reducing load times by **30%**.
- Constructed a robust backend with **Express.js/Node.js** & **MongoDB**, securing data with **95% uptime**.
- Integrated **auth.js** for secure login, refining Trello workflows & lifting retention and hosted on Vercel.