Zaid Khan

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EDUCATION

Kennesaw State University — **Marietta, Georgia**
B.S. in Computer Science — *Expected Graduation, May 2026*

- **Concentrations:** Artificial Intelligence and Machine Learning
- **GPA:** 3.46/4.00, *Dean's List*
- **Related Coursework:** Artificial Intelligence, Machine Vision, Machine Learning, Data Structures & Algorithms, Computer Organization and Architecture, Operating Systems, Data Analytics, Database Systems

EXPERIENCE

KSU VEXU Robotics Team — **Marietta, Georgia**
OWL Robotics Programming Lead — *Aug 2022 – May 2024*

- Led a team that built 8 VEXU robots using C/C++ for a skills challenge competition and placed in the top 3 worldwide.
- Used C++ to design and implement a field-oriented positioning system using odometry, enabling robots to accurately navigate a 12ftx12ft field autonomously amidst external interactions with other robots.
- Developed and fine-tuned PID controllers using C++ to ensure precision in movements across varying speeds using feedback loops with motor encoders and third-party sensors to maintain accuracy during complex maneuvers.
- Engineered and programmed robots to work seamlessly with multiple subsystems such as object manipulation, terrain traversal, and dynamic scoring mechanisms to enhance efficiency in both autonomous and driver-controlled modes.
- Leveraged git to allow for collaboration between 13 team members to work around multiple devices.
- Debugged issues regarding the use of third party sensors and libraries such as odometry pods and OpenGL.

Code Ninjas — **Snellville, Georgia**
Coding Instructor — *Oct 2023 – May 2024*

- Taught 20+ students daily the fundamentals of programming and game development using Python and JavaScript.
- Instructed 5+ students daily in the basics of game development and debugging, utilizing C# and the Unity engine.

PROJECTS

Live Traffic Sign Detection — **Atlanta, Georgia**
Machine Vision Final Project — *Oct 2024 – Nov 2024*

- Designed and implemented a traffic sign recognition system using a ResNet-152 CNN model trained on the GTSRB (German Traffic Sign Recognition Benchmark) dataset with 43 unique traffic sign classes.
- Processed video input using OpenCV to display predicted sign class and confidence score on video frames.

Diabetic Retinopathy Classification using Deep Learning — **Atlanta, Georgia**
Personal Project — *Oct 2024 – Present*

- Designed and implemented a deep learning model using a fine-tuned ResNet-50 in PyTorch to classify Diabetic Retinopathy in retinal images, achieving upwards of 98% accuracy.
- Streamlined data processing with custom dataset classes and DataLoader, enabling efficient batch loading and augmentations (resize, normalize) to enhance model robustness and performance.

Web App Portfolio — **Atlanta, Georgia**
Personal Project — *June 2024 – Present*

- Developed an interactive web app using Heroku, Flask, HTML, Tailwind, and Python, allowing users to upload their own datasets and images to simulate machine vision results in real-time.

Machine Learning, Machine Vision — **Marietta, Georgia**
ML Engineering Student — *Aug 2024 – Present*

- Developed a KMeans clustering algorithm using Python, NumPy, Matplotlib, and Pandas to perform unsupervised learning on the Iris dataset, visualizing distinct data clusters, demonstrating the algorithm's ability to separate data based on intrinsic properties without supervision.
- Implemented advanced image processing techniques using Python, Pillow, NumPy, and OpenCV to perform pixel-level image downscaling/upscaling, quantization, transformation, and histogram equalization showcasing the effects of these transformations on image quality and enhanced visual representations for machine vision tasks.

ACTIVITIES AND LEADERSHIP

Georgia V5RC — **Atlanta, Georgia**
VEX Robotics Mentor — *Aug 2022 – Current*

- Mentored 20+ robotics teams in Georgia and the southeast US helping novice teams make it to the final rounds at the VEX Robotics World Championship.
- Ran 3 local camps and 10+ competitive events as part of community outreach to introduce and build a foundation of STEM for 1000+ students.

KSU VEXU Robotics Team — **Marietta, Georgia**
VEX Robotics Team Lead — *Aug 2023 – May 2024*

- Led and coordinated a team of 50+ members, managing scheduling, lab space, and collaboration between students and professors using tools like Slack, Outlook, and Google Calendar to optimize efficiency in preparation for competitions.
- Managed a $15,000 budget to support participation in VEX and Combat Robotics events, overseeing the allocation of resources for materials, travel, and community outreach initiatives.

SKILLS

Languages: Python, Java, C, C++, C#, SQL, HTML, CSS
Libraries and Frameworks: Pytorch, Numpy, Pandas, Matplotlib, Pillow, Scikit, Heroku, Flask
Tools and IDEs: Git, VSCode, Intellij, Pycharm, Windows, Linux, VIM, Office Suite, Google Suite, SQL Management Studio