Kuber Sarwal

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EDUCATION

Georgia Institute of Technology — Atlanta, GA
Bachelor of Science in Computer Science — *Expected Graduation: May 2028*

EXPERIENCE

Research Intern — Camden, NJ
Rutgers University — *Jan. 2024 – Jan. 2025*
- Analyzed algorithmic bias in redlining using HMDA datasets (25M+ samples, 2007–2023) and built ML models (**Random Forest, SVM, Logistic Regression, Neural Networks**) in **PyTorch/scikit-learn** to assess loan outcomes and bias through fairness metrics (statistical parity, disparate impact, Theil index)
- Reduced bias in HMDA datasets (25M+ samples, 2007–2023) by up to 59% using **reweighting** and **domain knowledge** via **AI Fairness 360**; published findings at **IEEE BigData 2024**.

Machine Learning Intern — Montgomery, NJ
Learnroll LLC — *Dec. 2024 – Mar. 2025*
- Labeled over **10,000 video frames** using **CVAT** and trained a **YOLOv8-based motion detection model** to track CPR keypoints and evaluate compression metrics (depth, frequency, arm positioning).
- Showcased AI-driven CPR training with live demos at a heart charity event, highlighting big data tools and the importance of high-quality data annotation for healthcare innovation to 50+ attendees.

Independent Researcher — Remote
Journal of Emerging Investigators — *Jun. 2023 – Jan. 2024*
- Developed and trained a custom computer vision **AlexNet CNN** model on 14,000+ shark species images (150 epochs) achieving 98.7% accuracy; used MATLAB for preprocessing, augmentation, and analysis.
- Authored a peer-reviewed paper in the *Journal of Emerging Investigators* and presented findings at an AI research symposium with 50+ attendees.

Software Engineering Intern — Remote
uMobi Solutions Corp — *Jun. 2023 – Sep. 2023*
- Implemented **REST** and **Zyte APIs** with web spiders for data mining to scrape, process, and display live news feeds on the Raydeo mobile app with information security and verified code correctness using automated tests.
- Optimized task management and data structures to reduce news information transmission time by up to 50%.

PROJECTS

Perfect Punch - BDBI@GT | *Python, Flask, React, KNN, Neural Networks, Random Forests* — Sep 2025 – Present
- Built an AI-powered boxing assistant that classifies punches and evaluates metrics (range, frequency, dodge time) in a gamified environment using an **active learning (QBC)** pipeline with KNNs, Neural Networks, and Random Forests achieving **96% accuracy**; trained models on the **PACE cluster** leveraging **GPU acceleration**.
- Integrated an **LLM coaching agent** providing real-time feedback, adaptive training recommendations, and progress visualization through a **Flask–React dashboard**

ServeSmart | *ReactJS, Flask, SQL, OpenAI API, XGBoost* — Sep. 2025
- Developed an **XGBRegressor**-based model, deployed via **Flask**, to forecast restaurant demand with **86% accuracy**, featuring an ingredient analyzer and budget manager to optimize purchasing and reduce food waste.
- Integrated an **OpenAI chatbot** for ingredient planning, inventory tracking, and surplus routing to local food banks, with insights visualized on a **React–SQL dashboard**.

BeatTok | *Flask, React, Python, Neural Networks* — Oct. 2024
- Developed a TikTok-style app for discovering and sharing AI-generated beats using **React** and a fine-tuned open-source **BeatGen neural network** to generate beats from lyric .wav files; 1st at Iollin Challenge Hackathon.

TECHNICAL SKILLS

Languages: Java, Python, JavaScript, HTML/CSS, SQL, C++, C#, R
Frameworks: React, React Native, Node, Flask, Angular, Django, Fast API
Developer Tools: Git, Google Colab, PyCharm, IntelliJ, Jupyter Notebook, AWS, Azure, MongoDB
Libraries: Pandas, NumPy, Matplotlib, PyTorch, Tensorflow, Scikit-learn