Aman Anwar

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EDUCATION

Virginia Tech	**May 2028**
B.S. in Computer Science	*Blacksburg, VA*

EXPERIENCE

IDPRO @ Virginia Tech — **Jul. 2025 – Present**
Research Project Lead — *Blacksburg, VA*
- Leading a team of 3 on spatial audio research, collaborating with subject matter experts to explore immersive sound.

Lumiq — **May. 2025 – Present**
Software Engineer Intern — *Remote*
- Developed a scalable Spring Boot REST API server with Spring Data JPA, Hibernate, and PostgreSQL.
- Processed 100+ requests/second with <50ms latency, exceeding performance goals outlined by senior engineers.
- Developed a comprehensive churn analysis pipeline, employing machine learning models for predictive analytics, predicting when customer churns.
- Explored and cleaned the dataset, performed comprehensive data analysis, and applied SMOTE to address class imbalance, resulting in a model with a 95% F1 score.

IDEEAS LAB @ Virginia Tech — **Feb. 2025 – Present**
Undergraduate Researcher — *Blacksburg, VA*
- Engineering a novel spatial audio synthesis system using Gemini 2.5 AI models, enabling more immersive and individualized 3D audio experiences.
- Developed a Python spatialization library, spatialAudiopy, utilizing object oriented design principles, including comprehensive functions for intuitive Spatial audio development.
- Increased research productivity by 2x using custom developed library over traditional methods.

PROJECTS

Fit Finder | Winner @ HooHacks25 | JavaScript, Perplexity, MongoDB, Python — Mar. 2025
- Built a visual outfit similarity search engine using vector embeddings from OpenCLIP (ChromaDB) and Vector search from scalable MongoDB Atlas, enabling personalized apparel discovery in user uploaded closet pictures.
- Integrated Google Gemini to generate outfit metadata and segments, boosting vector search accuracy by 2x.
- Increased visual product search accuracy by 50% by integrating Perplexity Sonar with Gemini generated image descriptions.

Questionable | Perplexity Hackathon | React, TypeScript, Flask — May. 2025
- Developed a full-stack interactive news platform that redefines user engagement through dynamic widgets.
- **Engineered a cost-effective Flask backend with scalable, cached API endpoints**, strategically integrating **Perplexity's Sonar models** for dynamic content generation.
- Implemented a **smart caching mechanism on MongoDB Atlas** to significantly reduce API call frequency and optimize resource utilization.
- Designed and built the frontend using React + TypeScript, incorporating Framer Motion and Tailwind CSS for engaging animations and a seamless user experience.

Mumbl | HackViolet25 Finalist | JavaScript, Gemini API, Express.Js — Feb. 2025
- Developed an AI-driven speech analysis tool providing real-time feedback on tone, energy, and content.
- Engineered advanced prompt structures for the Gemini API, enabling nuanced and actionable speech analysis.
- Built a secure, decoupled Express.js backend to manage audio processing and API interactions, enhancing performance and modularity.

AWARDS

Best Use of MongoDB Atlas @ MLH| HooHacks25 — Mar. 2025
University of Virginia, Charlottesville, VA

TECHNICAL SKILLS

Java, JavaScript, TypeScript, **Python, SQL,** Docker, Flask, Node.js, **PyTorch, Scikit-Learn, Pandas**, React.js, REST APIs, Express, MongoDB, PostgreSQL, Windows Command Line, Linux Command Line, Bash Scripting