Aman Anwar

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EDUCATION

Virginia Tech   **May 2028**
B.S. in Computer Science   *Blacksburg, 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, Google Cloud Platform

EXPERIENCE

IDPRO @ Virginia Tech   **Jul. 2025 – Present**
Research Project Lead   *Blacksburg, VA*
- Leading a team of 5 in cutting edge spatial audio research, collaborating with an industry leading sound engineer to explore automation of Spatial Audio(ambisonics).
- Developing an end-to-end audio processing pipeline integrating OpenAI Whisper, Facebook DEMUCS, and LLM fine-tuning on Apple MLX for intelligent sound separation and scene adaptation deployed on AWS Bedrock.
- **Authored a successful proposal securing a $1,000 ICAT SEAD Grant to support ongoing research.**

Lumiq   **May 2025 – Aug. 2025**
Software Engineer Intern   *Remote*
- Built an end to end churn prediction pipeline using Python and Scikit-learn, achieving a 95% F1-score in forecasting customer churn.
- Performed extensive exploratory data analysis, feature engineering, and SMOTE based resampling on 100K+ customer records to correct class imbalance and enhance minority recall by 40%.

IDEEAS LAB @ Virginia Tech   **Feb. 2025 – Aug. 2025**
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.

PROJECTS

PiggyBank | 3 Awards @ HackPrinceton 2025 | Knot API, Photon iMessageKit, Flask, React   **Nov. 2025**
- Built a financial agent that learns your transactions and habits to predict user's next transactions to nudge them via iMessage to help develop better financial habits.
- Integrated **Knot's Production TransactionLink** with **Photon's IMessage Kit** to deliver real transactional insights and nudges using a custom prediction model deployed on DigitalOcean, powered by vector search in Snowflake.
- **Awarded 2nd Place by Knot, Best use of DigitalOcean by MLH, and Honorable mention by Photon Framework.**

Atlas | 2nd Place @ Marriott Codefest 2025 | React, Flask, Google Cloud Platform   **Feb. 2025**
- Built an infinite-canvas trip planner using React Flow, Flask, and MongoDB Atlas, enabling visual, non-linear travel organization with automatic state saving and real-time sync.
- Integrated AI-driven personalization through RAG and vector search, plus Google Places API for an accurate places feed and the Nano Banana model for intuitive room requests.
- Strengthened platform security via JWT authentication, bcrypt hashing, and hard-to-guess upload URLs, and delivered analytics dashboards helping hotels refine marketing and guest experience.

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.

AWARDS & RESEARCH GRANTS

2nd Place| Knot Track @ HackPrinceton   Nov. 2025
KnotAPI, New York, NY

Honorable Mention| Photon Track @ HackPrinceton   Nov. 2025
Photon Framework, San Francisco, CA

2nd Place @ Marriott Codefest   Oct. 2025
Marriott International, Bethesda, MD

Roger & Debbie West ICAT SEAD Grant   Oct. 2025
Virginia Tech Institute for Creativity, Arts, and Technology, Blacksburg, VA