Eshan Khan

(443) 449-4909 | eakhan37@gmail.com | linkedin.com/in/eshankhan05 | github.com/eshan327 | eshankhan.vercel.app

Education

University of Maryland, College Park   *Graduation: May 2027*
B.S. in Computer Science, B.S. in Mathematics | GPA: 3.8   College Park, MD
Relevant Coursework: Computer Systems, Compilers, Machine Learning, Data Structures, Algorithms, Functional Programming, Object-Oriented Programming, Statistics, Real Analysis, Data Science, Linear Algebra

Experience

Apex Fund   *Sep. 2024 – Present*
Quantitative Developer   College Park, MD

- Deployed an algorithmic market-making bot on Kalshi with Python and Selenium, generating 2% monthly returns on weather derivative bid-ask spreads
- Constructed a volatility arbitrage model in Python using IV/RV ratios and term structure signals across 72k+ earnings events; Monte Carlo backtests yielded 9% CAGR and 2.1 Sharpe with Kelly sizing
- Attained 83% accuracy predicting oil market anomalies using SVMs and isolation forests with JAX and XArray

Technuf   *May 2022 – Sep. 2022*
Software Engineer Intern   Bethesda, MD

- Created Aphelia StudentConnect, a mobile app deployed to 6+ public schools and a nonprofit, enabling student attendance tracking and engagement analytics
- Built a barcode scanning system with Flutter and Dart for ID logging, integrating a MySQL backend and RESTful API to reduce manual error by 85%
- Implemented a local Sqflite database to manage 1,700+ students and support user-based CRUD operations
- Authored a software requirements document and prototyped 8+ Figma mockups to improve UX/UI flow for students

Projects

Auditory Intent Classifier for Autism | *Website*   *Python | Pytorch | Scikit-learn*

- Placed 1st out of 500+ participants in a university ML competition by classifying expressive intent from nonverbal vocalizations to support autism research
- Developed a full ML pipeline with Pytorch, Keras, Scikit-learn, and Librosa to process 7,000+ audio samples using MFCCs, spectral entropy, and Mel spectrograms as features
- Achieved 95% F1-score using vision transformers, outperforming CNN and RNN baselines on emotion classification

Palette: Canvas AI Assistant   *React | Node.js | Docker*

- Created an AI assistant Chrome extension for the Canvas LMS, providing automated academic insights to 100+ students
- Architected a privacy-first system using React and Node.js, processing all user data on-device with a locally-hosted LLM
- Automated academic data retrieval via the real-time Canvas API, eliminating manual searches for grades and assignments

Poisson Disk Sequences   *Rust | WebAssembly*

- Harnessed Bridson's Poisson-Disk sampling algorithm in Rust to generate distance-constrained, random 2D point distributions for procedural content generation
- Optimized spatial grid data structures to achieve linear runtime, and compiled to WebAssembly for in-browser visualization with sub-3s rendering

GroceryZone   *Django | JavaScript | PostgreSQL*

- Developed a full-stack grocery ordering platform using Django, PostgreSQL, and server-rendered HTML with role-based access control and order lifecycle management
- Containerized with Docker and Docker Compose for scalable orchestration of backend services

Skills

Languages: Python, Java, C/C++, JavaScript, TypeScript, Rust, SQL, OCaml, R
Developer Tools: Git, AWS, Docker, Kubernetes, Linux/Unix, Maven, Jira, Figma
Libraries/Frameworks: Spring Boot, Django, React, Node.js, Next.js, NumPy, Pytorch, Pandas, JUnit