EYAD KAMIL

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Education

College of Computer, Mathematical, & Natural Sciences, University of Maryland **College Park, MD**
B.S. in Computer Science, Minor in Statistics

Work Experience

StellarIQ **Atlanta, GA**
Forward Deployed Engineer *April 2025-Present*

- *Python, Kotlin, TypeScript, Docker, Databricks, Redshift*
- Serve as a cross-functional engineer spanning platform, data engineering, and consulting to scope and deliver end-to-end Data Analysis agents for Fortune 500 CPG companies, from data discovery and requirements gathering through production deployment.
- Architect and maintain a modular library of reusable analytics tool calls that compose into AI-driven pipelines, enabling intelligent agents to perform automated data analysis and on-demand reporting tailored to each client's business workflows.
- Own data engineering and ETL pipelines to ingest, transform, and normalize massive CPG datasets into optimized formats, tuning database performance and query execution to support low-latency agent interactions at scale.
- Collaborate directly with clients to translate complex business workflows into agent feature requirements, and coordinate with services teams and PMs to define project budgets, timelines, and deliverables.
- Extend and debug core platform code to ship client-specific agent capabilities not yet supported, bridging gaps between product infrastructure and project requirements.

Peloria, Artificial Intelligence Research Group **Washington, DC**
Fullstack Engineer *February 2024-March 2025*

- *TypeScript, Python, PyTorch, Postgres, WebGL, S3*
- Engineered a WebGL-based real-time rendering pipeline to visualize historical, biweekly satellite imagery across 70 regions of interest. Built an image processing server to convert and compress large geoTIFF images from Google Earth into optimized PNG formats, significantly enhancing rendering speed and performance in the browser. Implemented a custom caching mechanism to avoid redundant and expensive queries, ensuring smooth, real-time user interactions.
- Developed dynamic dashboards using React and D3, along with an internal GeoJSON SVG library, to visualize regional data (crime, migration, birth rates), enhancing data presentation and insights.
- Collaborated with World Bank to build APIs and infrastructure tailored to client-specific needs, improving data accessibility and utility.
- Developed web crawler and ETL pipelines, utilizing Llama 3.1, to process language data and build migration prediction models.

Fannie Mae, Single Family Analytics, Distressed Assets Team **Washington, DC**
Machine Learning Intern *June 2021 – August 2021*

- *Python, PyTorch, R, Tableau, Postgres*
- Designed and implemented deep learning models using PyTorch and NumPy for loan underwriting risk assessments, and built regression models to estimate replacement costs of foreclosed properties, incorporating property condition, market trends, and geographic factors.
- Created classification algorithms to evaluate repair-vs-sell decisions for foreclosed homes, and designed interactive Tableau dashboards for real-time analysis of foreclosure property data, enabling stakeholders to make more informed decisions.

Projects

Drone Studio **October 2024 - Present**
Individual

- *Zig, C/C++, Raspberry Pi (Zero 2W), MPU-9250, libavcodec, OpenGL, NTP, UDP/RTP, Linux Networking, Madgwick Filter, 3D Printing*
- A real-time visual SLAM system for drones using stereo cameras for depth estimation. Streams synchronized video frames over a custom Wi-Fi access point to a server, decodes them with hardware acceleration, and fuses camera-based visual odometry with IMU data to dynamically render a 3D environment.

Features include:

- Stereo camera using Raspberry Pi cameras with NTP-based frame synchronization for depth and pose estimation.
- Low-latency video streaming pipeline leveraging UDP/RTP and hardware-accelerated H.264 decoding via FFmpeg.
- Madgwick filter for robust sensor fusion, enabling real-time orientation updates in OpenGL-based rendering
- Ongoing development of PID loop using estimated Pose to obtain Roll, Pitch, Yaw and Throttle needed to reach desired location

Fuse **December 2024 - Present**
Individual Project

- *Zig, Python, CUDA, LLVM, PTX Assembly, FFI*
- A lightweight JIT compiler for GPU tensor operations that automatically fuses multiple operations into optimized CUDA kernels. Generates PTX (Parallel Thread Execution) code at runtime for direct GPU execution, eliminating the overhead of multiple kernel launches.

Features include:

- Automatic operation fusion that analyzes tensor operation dependencies and combines them into single, optimized CUDA kernels, reducing launch overhead and memory transfers.
- Runtime PTX code generation via LLVM, compiling high-level tensor operations down to GPU-native instructions for maximum flexibility and performance.
- FFI bindings enabling seamless integration with Python for shared library support and external tooling.

Skills and Interests

Languages: TypeScript, JavaScript, Next.js, Java, Python, C, C++, SQL, HTML/CSS, Go, Zig, Rust
Frameworks: Linux, React, Node.js, Next.js, Express, Redux, PyTorch, Numpy, TensorFlow, OpenCV, CUDA, Selenium, Flask, FFmpeg
Tools: Docker, Git, GitLab, AWS, Azure, GCP, Slurm, Tableau, GDB, GCC, LLVM, PTX