DILRAJ DEVGUN

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EDUCATION

University of Washington   Seattle, WA
BS Computer Science *GPA: 3.75*   Aug 2015 - Jun 2019

EXPERIENCE

Meta   New York, NY
Senior Software Engineer - XR Eyes   Oct 2023 - Present

- Productizing Eye Tracking Computer Vision/Machine Learning solutions for next-gen AR/VR devices
- Implemented real-time gaze data APIs and frontend UI for prototypes that pioneer novel system-wide UX/input modalities, collaborating with UX Research and Design teams
- Spearheaded a new eye tracking calibration mechanic through development, user studies, and data analysis to discover tighter gaze sample clusters and improved user compliance improving ET accuracy
- Improved ML infrastructure and tooling to reduce manual steps in data ingestion and profiled pipeline to find optimizations in image stitching logic
- Developed and optimized dynamic memory allocations for various low level computer vision algorithms to enable the bring up of an E2E Eye Tracking pipeline in an embedded environment for AR Glasses
- Led privacy initiatives for ET, including the bring-up of a secure VM using Qualcomm Trusted Virtual Machine and latency profiling between ML model execution and inter-VM communication to optimize throughput

Senior Software Engineer - Instagram Web Server   Oct 2022 - Oct 2023

- Joined the Web Server team responsible for performance, scalability, and reliability of IG infrastructure
- Improved IG Django server fleet efficiency by >3% saving the org $5 million annually by optimizing the refcounting in the implementation of immortal instances in the CPython runtime
- Reduced network overhead between Facebook and Instagram servers by implementing a streaming RPC protocol for requests that require multiple back and forth communication between the two fleets
- Optimized threading and fiber memory on IG's server fleet by 66% (600MB/Host) by profiling system memory allocations and fine-tuning the pool size to optimize for the average request
- Increased host throughput during overload scenarios for Instagram traffic by implementing request timeouts and load-shedding in the reverse proxy

Senior Software Engineer - AR Glasses CV/ML Firmware Team   Apr 2021 - Oct 2022

- Developed custom silicon firmware to accelerate Computer Vision and Machine Learning for AR glasses.
- Adapted reference research Computer Vision algorithms into high-performance production C/C++ implementations to produce depth maps from raw sensor data in an embedded system
- Assisted in pre-silicon validation for custom hardware CV and ML accelerators

Microsoft   Redmond, WA
Software Engineer   Aug 2019 - Apr 2021

- Software development for custom ASIC on the HoloLens, IVAS Project, and future AR devices
- Integrated sensors and supported device bring-up by writing drivers and creating APIs for data access.
- Tripled frame rate for IVAS cameras by implementing shared memory buffer libraries in an embedded memory constrained environment
- Maintained C++ tools for recording and replaying sensor data streams to debug runtime algorithms
- Cut factory costs and increased output yields by 50% through implementing novel computer vision algorithms to calibrate display and cameras in factory pipelines

PROJECTS

Meraki *Swift, Objective-C, Google Cloud Platform, Figma*   merakiapp.co
Designed, developed, and maintained a task management iOS app which aims to be an exploration of reducing productivity stress through its implementation of novel UI and UX methods. The original project was on Apple's Best New App section in Germany, Sweden, and Austria

SKILLS

Fluent Programming Languages:	C, C++, Java, Python, Swift, Objective-C, C#
Intermediate Programming Languages:	JavaScript, Rust, Go