MELODY LI

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SKILLS

Languages: Python, C, C++, Objective-C, Swift, Kotlin, JavaScript, Go, SQL

Tools and Frameworks: UIKit, Node.js, jQuery, Jenkins, Dagger, Linux

General Skills: Performance optimization, Data pipelines, Test framework designs

WORK EXPERIENCE

Snap Inc, iOS Software Engineer — Oct 2021 – present

Camera team, improving the performance, quality and reliability of video messages and developing editing tools on Snapchat iOS. Took ownership of media import services beginning in March 2022.

- Developed end-to-end sound mixing technologies — a top-requested feature from content creators — alongside one other engineer to enable support for multiple audio tracks in creation flow, affecting an estimated 200 million daily video messages
- Migrated all legacy editable-video playback and client-side transcoding services into newer pipeline to accelerate feature development, reducing p50 latency of video backups by 4% and default video message p50 latency by up to 8%
- Designed client-side automated test framework in Objective-C and Swift to measure video quality degradation, fixing 5 longstanding issues with transcoded output video frames and identifying up to $25 million in storage cost-saving opportunities
- Contributed to feature app development efforts to modularize playback and transcoding service by introducing new audio tools, improving engineering productivity and significantly increasing test coverage
- Completed deprecation of legacy video import service by migrating 3 additional camera roll import flows to new import service

Google, Software Engineering Intern — Sept 2020 – Dec 2020

Hotel rankings team, selecting best name for rental listings to maximize click probability.

- Designed data pipeline to add ranking features to 2 million daily Google-searched query datasets, scoring new datasets in hotel ranking Tensorflow machine learning model and filtering for highest scoring name using C++, Python and SQL
- Configured pipeline to run in parallel using Flume through Borg cluster management system, processing over 3 million template names containing 25 translations each in 20 minutes
- Analyzed ranking model results to determine natural language translation shortfalls, determining a template name selection rate statistical variance of 40% across different languages

Snap Inc, Software Engineering Intern — May 2020 – Sept 2020

Monetization and ad formats team, improving performance of web view on Snapchat Android.

- Designed application to isolate web view from Snapchat app using Kotlin, Dagger and Jenkins for automated performance testing, allowing collection of performance metrics within a 2% error bound on identical runs
- Migrated lenses web view to newer web service to enable redirecting and deep linking, improving the latency by 6%
- Processed 50+ terabytes of advertisement data with BigQuery in SQL to filter suspicious advertisers, compute ad purchase conversion rate, and model relationships between web view latency and rate of purchase

Google, Engineering Practicum Intern **May 2019 – Aug 2019**

Worked on ads integrity team, scanning third-party ads for malware and fighting malicious advertisers.

- Designed and automated weekly vendor release process to reduce malvertising escalations using Python, C++ and Go, saving engineers 2 hours of time every week
- Configured 5 new types of querying from ad database to allow historical versioning verification and provide a reverting mechanism
- Implemented script generation in Python and SQL to read and write to SSOT database, resulting in better organized advertiser serving versions and facilitating cross-team referencing

Hubdoc by Xero, Software Developer Intern **Jan 2019 – Apr 2019**

Worked on automated document fetching from various online services for accountants and bookkeepers.

- Reconstructed asynchronous scrapers for 7 financial services in JavaScript using frameworks include Nightmare.js and jQuery, collecting an estimated 10000+ documents for 7000 clients with an 85% success rate
- Used Backbone.js, Handlebars.js and PostgreSQL to create logging system for tracking service scheduling within company intranet

Primate Labs Inc, Hardware Analyst Intern **May 2018 – Aug 2018**

Contributed to Geekbench 5, a cross-platform processor benchmarking software.

- Implemented Gaussian blur benchmark in C++, Vulkan and OpenGL Shading Language

RESEARCH EXPERIENCE

University of Waterloo, Undergraduate Research Assistant **Jan 2021 – Apr 2021**

Worked under Dr. David A. Clausi on sea ice classification from satellite images using computer vision and deep learning.

PROJECTS

HDR Algorithm (Python)

- Implemented Debevec-Malik and tone-mapping algorithms to improve blending of homographies captured with different exposures

BiQuadris (C++)

- Collaborated with 2 other students to design multiplayer Tetris battling game with 5 distinct difficulty levels using OOP principles

Image processing tool (JavaScript, HTML)

- Implemented 5 convolution algorithms to create filters and manipulate images, including blurs, grayscale, and edge detection
- Designed scanner algorithm to submit school assignments electronically

EDUCATION

University of Waterloo

Honours Bachelor of Computer Science, Minor in Statistics (Dean's Honours List) **2017 – 2021**

Computer science courses: Compilers, Operating systems, Computer vision, Security, Artificial intelligence

Statistics courses: Stochastic processes, Enumeration & graph theory, Computational inference