YUAN GU

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WORK EXPERIENCE

Software Engineer, Google LLC - Android Privacy Sandbox Team 03/2022 - Present
Project: On-Device Personalization - User Data and Policy Compliance Mountain View, CA

- Built, maintained, and tested Android system modules in **Java/Kotlin** that empower on-device ads targeting by leveraging **edge computing** technologies, which will deprecate cross-app identifiers on Android.
- Built end-to-end, resource-efficient **ETL** pipelines to periodically collect on-device, real-time user data for **3+ billion** users. Designed and implemented **SQLite** database schema, **upgrade/rollback** mechanism, and **DAOs** to store privacy-sensitive data with **TTL controls** that automatically clean up stale records.
- Fully owned the design of a **policy enforcement** module (aka. policy engine) in Kotlin that provides adtech developers with APIs to access on-device data in compliance with legal regulations (GDPR, CCPA, COPPA, etc.) and **user consent** settings by **codifying** policies into system. Our design separates policy management from data processing logic, which facilitates **compliance audit** efforts and minimizes privacy violations.
- Integrated an open-sourced **C++** library into the policy engine to enforce more advanced privacy-preserving use cases: data formatting per IAB standard, **differential privacy** noise on raw data, and a verification engine for **SQL** queries, which ensures that only aggregated, de-identified data can leave the device.
- To enforce COPPA and AADC laws, **xfn'ly** collaborated with PM/legal to finalize and enforce kids policies for the GA release by building APIs to obtain kid status. Awarded **1000$ cash bonus** by senior leadership.

Software Engineering Intern, Cloudera, Inc. - Distributed Storage Team 05/2021 - 08/2021
Project: Ozone Namespace Summaries in Recon Santa Clara, CA

- Enriched features for Hadoop's big data object storage, Apache Ozone, by adding **Java/Maven** modules and unit tests. Resolved 10+ **Jira** issues and contributed **10k+** lines of code as an open-source committer.
- Developed dashboard systems (CLI tool, Web UI, and APIs) for Ozone on the monitoring server, Recon, that helps clients visualize disk usage (DU) of Ozone clusters, which increases observability of the system.
- Designed a **RocksDB** schema to store real-time metadata updates by taking snapshots of Ozone datanode manager (OM) via **gRPC**. Implemented **Java RESTful APIs** that query metadata from RocksDB and (recursively) compute disk usage on Recon's backend, which saved 90% **CPU cycles** on OM.
- Visualized DU as pie charts on Web UI by building frontend in **React**, **TypeScript**, **Less**, and **Plotly.js**.

Teaching Assistant, Carnegie Mellon University 06/2021 - 12/2021, Pittsburgh, PA

- Redesigned the cloud storage project for cloud computing course, which built a social networking website with heterogeneous storage in **MySQL** for login info, **MongoDB** for comments, and **Neo4j** for social relations.
- Migrated cloud infrastructure and database provider from **GCP** to **Azure**. Built **Terraform** to automate VM deployment and dependency installation, which allowed students to focus on core learning objectives.

Full-Stack Mobile Developer, Iowa State University 04/2020 - 07/2020, Remote

- Developed a cross-platformed mobile app in **Flutter/Dart** for the university's COVID-19 Tracker project's dashboard, which provides daily infected cases and death tolls. Our work has been trended on news.
- In agile iterations, managed **UI design**, **automatic location pinpoint**, **OAuth integration**, and **screen size adaptation**. Loaded a **Firebase** database for the app from raw data in CSV and JSON.

EDUCATION

Carnegie Mellon University Pittsburgh, PA
Master of Science in Information Networking 08/2020 - 12/2021
Coursework: Computer Systems, Cloud Computing, Distributed Systems, Database Systems, Storage Systems
Honors: Merit-based Tuition Scholarship, 2020 vGHC Full Scholarship, Teaching Assistant for Cloud Computing

College of William and Mary Williamsburg, VA
Bachelor of Science in Computer Science and Mathematics, GPA: 3.87/4.00 08/2017 - 05/2020
Honors: *summa cum laude*, James Monroe Scholar, Research Assistant fellowship, Dean's List student