





# SIHAO (Ben) LU

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## Skills

Stack: iOS, backend, web

- Swift | Objective-C | SwiftUI | UIKit | Bazel | Jenkins | SPM | Cocoapod | Flutter | Dart | Combine | ReactiveSwift | RxSwift | swift-composable-architecture | Redux | MVVM | MVC | Javascript | Typescript | React | Ember.js
- Java | gRPC | GraphQL | Python | FastAPI | MySQL | AWS Lambda | S3 | Redis | TiDB | DynamoDB | Signafx | Snowflake

## Experience

Software Engineer - Messenger (iOS)

Block (Square)

02/2020 - Current

- As the **first mobile engineer**, architected, built and shipped **Square messages** that enables two-way communication between buyers and sellers through SMS, email and FB messenger on all **five Point-of-Sales verticals**. To date, iOS comprises of 60% of 25M weekly messages with 30k MAU.
- Designed and led the implementation of client **notification systems**, and **gRPC & GraphQL APIs**; cross-functionally **led the integration** of fine-tuned GPT-2 suggestion bot, appointments, online checkouts and invoices; enriched messages with photo and voicemail, converting 15% messages to sale, and achieving 35% increase of customer response rate.
- Took initiative and revamped the asset fetching, caching and persistent layer to support GIF, webP and videos. Led migration of Workflow architecture to an in-house lite version of swift-composable-architecture; actively involved in a task force to dissect mono repo codebase into a modularized structure that enables isolated development, **reducing build time** of developing modularized features by 80%.
- Grew from solo client engineer to a **client team of eight**; Mentored three and hired two among them.
- Continuously contributed to talent acquisition in Square with over 150+ coding, Q&A and architecture interviews.

Software Engineer - CRM (backend, web)

07/2016 - 02/2020

- Integrated Square gift card and loyalty features by working closely with payment stack and customer directory.
- Brought **Square E-gift card** (creation, editing and gifting) end-to-end from backend to the client (web, iOS).
- Designed and developed Square Loyalty public APIs and web hooks.
- **Revamped Square loyalty onboarding flow** within Square web dashboard and integrated smart recommendations, increasing visits by 25% and payment conversion from 2% to 3.5%.

Internships

Box, Microsoft

Summer 2014, 2015

- Integrated Box iOS app with 3D viewer that renders .obj files, and exponential backoff in asset fetching.
- Composed a script that monitors the node during Azure cloud disaster recovery.

## Notable projects

Satellite Forecast @ App Store

08/2022 - Current

- Designed and created app that predicts 4k+ satellite passes including ISS and Tiangong over any location; built with SwiftUI, Combine and SwiftRex (Redux) architecture; leveraging SQLite R-tree to query and off-screen render star maps.
- Targeted mostly for astronomy enthusiasts, received 5k impressions and 400 downloads since Dec 2022 release.

## Education

Computer Science, BS

Johns Hopkins University

09/2012 - 06/2016

- Graduated with 3.6 GPA on Dean's list. Relevant classes: Computer graphics, ML, OOP, distributed systems, databases.