RAMIN FIROOZYE

SOFTWARE
DEVELOPMENT

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Specialties and interests

Full-stack developer, from firmware, to gateway, mobile, browser, and back-end cloud stack. Enjoy solving Big Problems where the physical and digital worlds coincide. Particularly interested in architecture, design, and development of IoT, mobile, and new technologies. Portfolio of apps/devices: https://portfolio.firoozye.com (note: works under NDA not listed).

My work in the last few years has ranged from embedded firmware to mobile apps (iOS/Android), and scalable cloud-based back-end servers.

Although most of my work has been in small, focused teams as an individual contributor, I have also recruited, hired, and managed teams of up to 10 developers on larger projects.

Experience

- **Senior R&D Architect** - Amazon AWS R&D - 2019-Present
  - Tech Lead on cutting-edge products and services for AWS enterprise customers as part of the R&D Innovation/Envision Engineering. Work incorporated IoT at large scale, cloud-based robotics, AR/VR, Graph Databases, voice recognition, native mobile development, and use of the full range of AWS cloud-based services.
  - Created and developed SimpleIOT, a full-stack platform for creating secure, private, IOT devices. Built while at AWS and piloted with large industrial customers. Features included support for the full hardware lifecycle (design, testing, manufacturing, deployment, monitoring, and support), end-to-end security, and realtime AR/VR for digital twins. Will be released as open-source project in 2021.
  - Created and developed ARIOT (Augmented Reality + IoT) including Connected Device Description Language (CDDL). Publicly presented at re:invent 2019 (https://www.youtube.com/watch?v=eF3RSEfEXE4)

- Proposed and implemented an early version of the Hardware Partnership Program — where custom hardware services were matched with customers requiring bespoke hardware. Companies involved included Arrow Electronics and Laird.

❖ **Senior Software Developer** - Amazon Lab126 - 2018-2019

- Worked on a variety of consumer-oriented connected devices including televisions, remotes, voice-control assistants, and appliances. Technologies included Bluetooth, Zigbee, and Wifi firmware, system architecture, and scalable cloud infrastructure.
- Architecture, design, and prototyping of connected devices. Worked on PRFAQ, protocol design, CX, processor selection, vendor relations, as well as hardware, firmware, and cloud service designs.

❖ **Co-founder/CTO** — Fluid Hardware - 2017-2018

Stealth-mode startup. Project involved development of firmware for a range of ARM, BLE and wifi chipsets, mobile SDK and apps (iOS, Android), multiple back-ends (Python/Django, responsive web, REST-APIs), and deployment to cloud via Docker.

❖ **Senior Software Developer** — 2008-2017

Providing consulting services for a range of companies from startups to multi-nationals. Since 2007 have worked on native mobile app (both Android and iOS) and back-end development and from 2010 onward connected devices (Bluetooth, BLE, WiFi, LoRa).

Client projects I have worked on:

- **Animation, social, and gaming**: Developed iOS-based mobile animation engine and consumer app with social gameplay.
- **Analytics**: iOS, Android, and web SDKs for use in third-party mobile digital publications.

- **Automotive**: Design of CANBus-based remote vehicle gateway, mobile SDKs, and back-end services to enable shared vehicle fleet system for leading vehicle manufacturer.
- **B2B**: developed enterprise P2P video caching and playback software for Mac and iOS. Based on C++ core engine.
- **Classic Bluetooth**: consumer iOS app with MFI-compliant External Accessory Framework, IAP protocol, and audio support to work with wearable consumer bracelet.
- **Content delivery**: development of digital multimedia player (including animation and audio) for Windows 8 app (C#, C++). Featured on Windows app-store front-page.
- **Deep-linking**: iOS and Android SDKs to enable deep-linking and referral campaign tracking in mobile applications .
- **Geolocation**: Consumer-based Android phone and tablet apps showing realtime realty data with mapping and search.
- **Maintenance**: automatic problem detection and use-based maintenance scheduling for B2B connected-devices. Project saved millions of dollars vs standard time-based maintenance by avoiding unnecessary service trips.
- **Media**: iOS-based custom skinning library for use in creation of 'themed' white-label applications.
- **Robotics**: designed and developed Automatic Material Replenishment system for large-scale manufacturing, for on-demand delivery of material to assembly stations using self-driving robots.
- **Social media**: Consumer app with support for geo-tagged local postings, community notes, and media exchange (cross between Craigslist and NextDoor).
- **Video**: Development of prototype iPad-based streaming application for one of the largest cable TV providers in Europe.
- **VR**: Multi-threading support for Mac-based VR animation rendering system.

❖ IOT and connected devices

- **iBeacon**: Among first to reverse-engineer Apple iBeacon protocol with implementation on BlueGiga and TI Bluetooth chipsets. Gave technical presentation at Andreesen Horowitz and IOT World conference covering technology.
- **Wearable**: Developed protocol, BLE SDK, and consumer app for wearable notification device with support for Apple Notification Center Service (ANCS).
- **IOT**: B2B iOS and Android apps to communicate via BLE with wearable sensor tag for animal telemetry. Included sending data to Firebase server.
- **Transportation**: Developed iOS, Android, and Apple Watch versions of consumer app for control of self-balancing electric skateboard.
- **Healthcare**: Designed protocol, iOS and Android BLE SDK, and manufacturing test/app for award-winning consumer healthcare device.
- **Toys**: Developed Pebble Watch app enabling wrist-gesture control of remote-control airplane via BLE.
- **Audio**: Designed protocol, BLE SDK, and consumer app for wireless in-ear headphones.

❖ Own projects

- **Browser**: Designed and developed a new 100% native mobile browser. Featured native UI support with custom markup language and integrated Python scripting. System included browser, authoring tool, embeddable SDK, and integrated app-store. Used technology to ship native iOS client application showing extreme weather data worldwide. with support for 3D, mapping, and web view.
- **Back-end**: Developed Python / Django-based back-end server to obtain and cache extreme weather data from NASA.

- **Business**: Developed a business card exchange app with custom card layout design, imaging, geolocation, and server-based sharing. Python / Django-based custom back-end.
- **Proximity**: Developed iBeacon and Eddystone SDK to easily build proximity-based applications for iOS, Android, and AndroidWear. Python / Django-based back-end.
- **Consumer**: Developed consumer-based vehicle parking application. Winner of Macworld Best of Show award. Featured app iOS app-store. In use in 90 countries.
- **Gaming**: Developed iOS-based animated game with head-to-head game play. Use of Core Animation, multimedia, and motion-gestures.
- **Presentations**: Have given numerous technical conference and Meetup presentations on technical topics ranging from BLE to wearables, proximity technologies, connected devices, and firmware development.

- 3x startup co-founder.
- *List of prior projects available upon requests.* Clients have included: Apple, AutoDesk, Earthlink, Ericsson, IBM, Intel, John Deere, Kinsa, NASA, OneWheel, Oracle, Orange, Procter & Gamble, PG&E, Rockwell Collins, Sony, Taligent, and Toyota.

Certifications

- AWS Architect Associate
- AWS Developer Associate

Education

Pacific Lutheran University, B.A. Computer Science, English, Philosophy.

Editor of Saxifrage Literary Arts Magazine (3 years). School paper columnist.