

Erfan Gholami

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Android Engineer with **7+ years** building production mobile applications in **Kotlin** and Java – payments and digital wallets, e-commerce, GIS/mapping, and photo sharing – for companies in the UK, Italy, and Iran, on-site and remote. Repeatedly the **sole or lead Android engineer**, owning architecture, UI, testing, and Play Store release end to end. Deep in **Jetpack Compose**, Clean Architecture, **MVVM**, Hilt, Coroutines/Flow, and multi-module design; author of **Android Solid Services**, an open-source SDK with **two libraries on Maven Central**; NLnet-funded open-source maintainer. M.S. in Computer Engineering, Politecnico di Torino (2025).

EXPERIENCE

Senior Android Engineer

Apr. 2023 – Present

Freelance

Remote – Turin, Italy

- Deliver complete Android apps for clients as a one-person Android team – architecture through Play Store release – working directly with backend engineers, designers, and product managers.
- **Fotoshi** (Apr. 2023 – Present): sole Android engineer on a crowdsourced mapping product where contributors photograph places in the field and each capture lands on a shared **MapLibre** map with precise location, heading, and camera metadata attached – even with no signal.
- Engineered Fotoshi’s **offline-first** capture pipeline: every photo fuses a filtered location fix, raw GNSS data, device pose, and Camera2 lens metadata, queues to a local **Room** database, uploads to S3 via presigned URL with automatic backoff and re-upload, and is marked done only after the server confirms finalization – so no capture is ever lost.
- Built Fotoshi’s entire UI in **Jetpack Compose** (Material 3) on Clean Architecture with Hilt and Coroutines/Flow; **Paging 3** with a custom RemoteMediator backfills a local mirror for instant offline reads; DataStore (Protobuf) preferences; AWS Cognito authentication with per-user isolated databases.
- Cut Fotoshi’s battery drain by engineering adaptive-interval location monitoring and an idle camera auto-release.
- **Solid Share** (Jun. 2025 – Present): lead developer of an open-source, **NLnet-funded** (NGI Mobifree) app that turns a Solid pod into a personal data wallet: multi-account login, file browsing and management, sharing any file or folder by WebID, QR code, or link with View/Add/Edit access working across both Web Access Control (WAC) and Access Control Policy (ACP) servers, Android contacts sync, and a tickets wallet. (Kotlin, Compose Material 3, Clean Architecture, Hilt, WorkManager, CameraX, ML Kit.)

Android Engineer

Feb. 2021 – Jan. 2022

Green Wallet

Remote – London, UK

- Primary contributor to the B2C consumer app – a sustainable-shopping platform with Green Coins loyalty rewards – in Kotlin on an MVP architecture with clean separation of concerns, collaborating cross-functionally with design, product, and backend.
- Engineered the payment and security stack: **biometric + PIN** authentication, camera-based card scanning (card.io), a WebView-driven **3-D Secure** flow, in-store One-Click-Pay QR scanning, and card-token traffic isolated to a separate **PCI-scope** gateway.
- Built most of the B2B merchant companion: a read-only catalog and campaign browser with product search, filtering, and an end-to-end checkout preview.
- Owned release configuration – build variants, signing, versioning – gated the minimum app version via Firebase Remote Config, and supported QA across a regular cadence of internal builds.

Android Engineer

Dec. 2018 – Sep. 2020

HafHashtad

Tehran, Iran

- Designed and implemented Android applications for the company’s e-payment and telecom services inside a cross-functional team of developers, designers, project managers, and business managers.
- Shipped UI elements, payment screens, a “Rapid Transaction” quick-repeat feature, and Room-backed transaction history for **Hamoon**, a mobile-payments super-app (top-up, internet packages, bill payment, card-to-card transfer, charity donations).
- Worked deep in Hamoon’s bespoke **13-module platform**: screens are server-driven XML parsed at runtime by an in-house layout engine, and feature code ships as separate APKs – version-checked, cached, and **class-loaded through a custom PathClassLoader** with a ~150-entry element/action registry – so the shipped shell stays lean and features change without a Play Store release.
- Helped rewrite **Eways**, a consumer e-payment platform (bill payments, mobile charging, wallet, integrated store), from a single module into a **multi-module MVVM** architecture (Kotlin + Java) with repositories split into remote (Retrofit + RxJava 2) and local (**Room**) sources and a swappable mock data layer for testing; bank and card payments ran through an integrated third-party PEC gateway.
- Personally built Eways’ **unit-testing foundation**: a custom RxJava 2 scheduler rule and ~19 Robolectric ViewModel tests with JUnit and Mockito, catching regressions before every release.

Android Developer (part-time)

Apr. 2018 – Oct. 2018

KandaIdea

Tehran, Iran

- Maintained and developed Android applications for the company’s business partners, working with developers, project managers, business managers, backend developers, and a database manager.

- Contributed to **EsfahanCartoMap**, an enterprise field-inspection app for Isfahan Municipality: agents receive geo-located inspection missions on a Google Map, and a penalty can be filed only when the device's GPS fix is **within 100 m of the target feature**, with photo evidence uploaded alongside; map geometry correction, an offline queue-and-retry for patchy connectivity, **SignalR** real-time task updates, and a supervisor dashboard of per-user daily output. Resolved user-reported and auto-tracked crashes.
- Built **MobileGIS** (detailed under Projects) as a full-featured, reusable OpenStreetMap foundation for the company's future Android projects.

PROJECTS

- Android Solid Services** | *Kotlin, AIDL/Binder IPC, Compose, Hilt, OAuth 2.0, DPoP* 2023 – Present
- Open-source **three-component Android SDK** for integrating the Solid protocol into native Android apps – born as the M.S. thesis at Politecnico di Torino, in collaboration with PonderSource, funded by **NLnet** (NGI0 Entrust), and maintained as open source since.
 - The Services app runs **five bound AIDL services** that hold the tokens and DPoP keys and proxy authenticated pod requests – giving every Solid app on the device **one shared sign-in over Binder IPC**, with credentials that never leave the host app.
 - Published **two libraries to Maven Central**: a client library (the IPC SDK third-party apps use for resource CRUD, sharing, and notifications without ever touching a token) and a standalone API library (a direct, in-process path to a pod).
 - Implemented Solid-OIDC / **OAuth 2.0** sign-in with **DPoP token binding (RFC 9449)**: per-account keys in the **Android Keystore** and encrypted-at-rest token storage.
 - Built a sharing engine with View/Add/Edit access that **auto-selects Web Access Control or Access Control Policy** per resource, a Linked Data Notifications inbox, a contacts module over the Solid vCard-RDF convention, a self-healing Binder connector, and a custom OkHttp Solid client with a per-account response cache (RDF/JSON-LD via Titanium).
 - Consumed by two downstream apps: Solid Contacts (PonderSource's reference app) and Solid Share.
- Feed Machine** | *React, Python, UX research* 2023
- Social-media platform focused on user attention and digital wellbeing (Human-Computer Interaction course): a full UX process – user research, needfinding, paper prototyping, heuristic evaluation, usability testing – delivering time-usage dashboards, interest-based content filtering, and tools that reduce compulsive scrolling.
- Hike Tracker** | *React, Node.js, SQLite, agile* 2023
- Team-built platform promoting mountain hiking (Software Engineering II, agile methodology): multi-role user management (hikers, guides, hut workers, emergency operators), hike creation, real-time group tracking, mountain-hut network integration, and emergency reporting and handling.
- Digital Identity for Yourself** | *Security analysis, research* 2022
- Aruba × Politecnico di Torino challenge: analyzed the Italian digital identity (CIE/SPID) infrastructure, identified security vulnerabilities and privacy risks, evaluated business opportunities in the Italian and European landscape, and delivered a structured report with strategic recommendations.
- Samoun** | *Kotlin, Clean Architecture, MVVM, Hilt, Apollo GraphQL, Coroutines* Jun. 2021 – Oct. 2021
- Freelance charity-coordination app, full RTL (Persian): charities look up a family by national ID, phone, or name, see which other charities already support them through a network-wide coverage model, and create and track assistance records without editing another charity's data – graph-driven navigation on a lean two-activity shell, encrypted (AES) local session storage, Firebase Analytics and Crashlytics.
- Distributed DAF** | *Scala, Apache Spark, GraphX* 2020
- B.S. thesis: distributed adaptation of the DAF (Degree-Aware Filtering) subgraph-matching algorithm from its sequential C++ original to **Apache Spark GraphX** – DAG construction with degree-aware heuristics, candidate-space building with iterative refinement, and backtracking embedding enumeration – scaling subgraph matching across a cluster while respecting vertex labels.
- MobileGIS** | *Java, MVVM, OSMDroid, OSMBonusPack, OSRM, RxJava 2, Realm, GeoJSON* 2018
- Full-featured open-source **GIS app on OpenStreetMap**: interactive maps with configurable tile layers, polygon/polyline drawing with live area (Shoelace over a UTM projection) and distance measurement, OSRM route finding, GPS location history with speed readout exportable to GPX, and named overlays persisted to Realm as GeoJSON with KML import – reactive networking over Retrofit + RxJava 2 and AndroidX Data Binding.
- Worker Mobile Robot** | *C++, C, Arduino, OpenCV* 2017
- Designed and built an autonomous store-assistant robot: OpenCV-based object recognition, sensor-data processing, decision graphs, and control of a hand-like arm in C and C++ – 3rd place, National Skills Competition in Mobile Robotics.

EDUCATION

Politecnico di Torino

Turin, Italy

M.S. in Computer Engineering (Software) – Ranked #92 in the world, QS 2024

Sep. 2021 – Apr. 2025

- Thesis: “*Integrating Solid Project into Native Android Development*”, supervised by Dr. Antonio Vetrò, in collaboration with PonderSource and funded by NLnet – published and maintained as the open-source [Android Solid Services SDK](#).
- Selected coursework: Software Engineering (30/30), Software Engineering II (30/30), Web Applications I (30/30), Human-Computer Interaction (30/30), Formal Languages and Compilers (28/30), Big Data: Architectures and Data Analytics (26/30), Data Science and Database Technology (26/30).

Shahid Beheshti University (SBU)

Tehran, Iran

B.S. in Computer Engineering (Hardware) – Among the top 6 universities in Iran

Sep. 2015 – Sep. 2020

- Thesis: “*Implementation of Efficient Subgraph Matching Harmonizing Dynamic Programming, Adaptive Matching Order, and Failing Set Together on Top of Apache Spark*”, supervised by Dr. Hasan Haghighi – published as [Distributed DAF](#).
- Admitted in the top 0.5% of 300,000 participants in Iran’s national university entrance exam (Konkur).

NODET – National Organization for Development of Exceptional Talent

Sanandaj, Iran

Diploma in Mathematics and Physics – selective gifted-students program

2011 – 2015

HONORS & AWARDS

Iranian University Entrance Exam (Konkur) – top 0.5% among 300,000 participants, Iran	2015
National Skills Competition, Mobile Robotics – 3rd place, Karaj, Iran	2016
Electorate of World Skills Competition, Mobile Robotics – 3rd place, Karaj, Iran	2017
RoboCup IranOpen International Competition, Worker league – participant, Tehran, Iran	2017

TECHNICAL SKILLS

Languages: Kotlin, Java, Python, Scala, C/C++, JavaScript, SQL

Android Core: Android SDK, Jetpack Compose, Material 3, Navigation Compose, ViewModel, WorkManager, CameraX, Camera2, Paging 3, DataStore, AIDL, Binder, Inter-Process Communication (IPC), Coil, Glide, application and library development

Architecture & Patterns: Clean Architecture, Model-View-ViewModel (MVVM), MVP, multi-module design, dependency injection (Hilt, Dagger), Kotlin Coroutines, Flow, RxJava

Maps & Geospatial: MapLibre SDK, OpenStreetMap (OSM), OSMDroid, Google Maps API, OSRM routing, GeoJSON, KML, GNSS / fused location

Networking & Data: Retrofit, OkHttp, REST APIs, GraphQL (Apollo), Room, SQLite, Realm, Kotlinx Serialization, AWS (Cognito, S3, Amplify), SignalR

Security & Identity: OAuth 2.0, OpenID Connect (OIDC), DPoP (RFC 9449), Android Keystore, biometric authentication, encrypted storage, Web Access Control (WAC), Access Control Policy (ACP)

Testing & DevOps: JUnit, Mockito, Robolectric, Espresso, unit testing, Git, Gradle, CI/CD, Agile, Firebase (Crashlytics, Analytics, Remote Config), profiling & battery optimization

Semantic & Decentralized Web: Solid protocol, RDF, JSON-LD, Linked Data

Web & Systems: React, Node.js, Apache Spark, GraphX, Linux, Arduino / embedded, OpenCV

LANGUAGES

English (advanced) | **Italian** (upper intermediate) | **Kurdish** (native) | **Persian** (native)