

Raphael Bernardo

Senior Android Engineer · *Applied AI @ Forward Deployed Engineer*
Ex-Uber (contract) · Android TV, Fire OS and multi-brand OTT streaming —
Media3/ExoPlayer, DRM, native JNI/C++, and agent-driven delivery.

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IN linkedin.com/in/raphaelbgr

LOC Rio de Janeiro · GMT-3 CIT Brazilian + Portuguese (EU) dual citizen

LANG Portuguese (native) · English (fluent) · Spanish (intermediate)

AVAIL Open to a new engagement · current contract transitionable with notice

ENG Offshore B2B contractor (own CNPJ) · full US Eastern overlap

§ 01 Summary

PROFILE · POSITIONING

Senior Android engineer with cross-stack reach — Uber Maps SDK (JNI/C++), OTT / CTV streaming frameworks, broadcast-grade DRM. Ten-plus years shipping production apps across Android, Android TV, Fire OS, webOS and Tizen — including a multi-brand OTT streaming framework and 4K DRM-protected playback (Widevine, PlayReady).

§ 02 Experience

ENGAGEMENTS · 2014 → PRESENT

Nexstar Media Group, Inc.

Aug 2025 – Present · current

Senior Fire OS / Android TV Engineer · full remote **CONTRACT**

- Contributed to the architecture of an enterprise **OTT streaming framework** powering **multiple TV station brands** across Fire TV and Android TV using **MVVM + Clean Architecture** with a plugin-based integration layer for third-party services.
- Built five specialised **Media3 / ExoPlayer** implementations covering VOD, live, and audio playback with HLS adaptive bitrate.
- Shipped DRM-protected playback (**Widevine, PlayReady**) with both server-side and client-side ad insertion.
- Integrated the platform's analytics and audience-measurement stack under **GDPR / CCPA** compliance.
- Delivered TV-optimised auth (device-based), entitlement & flexible paywall, and zero-downtime feature rollouts across a large multi-brand flavor matrix via remote config; built Leanback TV UI with full d-pad navigation.
- Refactored callback chains to reactive Kotlin **SharedFlow**; resolved fragment-lifecycle leaks; wired **Firebase Crashlytics + New Relic** with JUnit, Mockk, Robolectric, Espresso coverage.
- Run a **client-approved agent-driven delivery workflow** end to end: an agent picks up the tracker issue with its acceptance criteria, works the change on an isolated branch, runs the test suite alongside agent-driven end-to-end checks against a running build, and opens a **GitHub** pull request carrying the issue context and test evidence.

GitHub Actions runs the pipeline; a second model audits the diff against the original request before anything is reported done.

Kotlin

Coroutines / Flow

Media3 / ExoPlayer

Dagger 2

Retrofit2

Moshi

Glide

Android Leanback

Jetpack (Nav, ViewModel, Room)

Firebase

Google IMA

New Relic

JUnit · Mockk · Espresso

FreeCast, Inc.

Dec 2024 – Jul 2025 · 8 mo

Android / Android TV / Fire OS Engineer · full remote

CONTRACT

- Returned to the Select TV and FreeCast Watch products across Android, Android TV, Fire OS, webOS and Tizen through to the end of the engagement.
- Used **coding agents as a primary development method** on migration and refactor work, with automated verification in CI before review.

Claro TV+

Apr 2024 – Dec 2024 · 8 mo

Android TV / Fire OS Engineer · full remote

CONTRACT VIA GLOBAL HITSS

- Greenfield Android TV / Fire OS app for one of Brazil's largest pay-TV operators; **4K streaming** via DASH / HLS with multi-DRM.
- Contributed to the data layer as a shared **Kotlin Multiplatform (KMP)** submodule consumed by Android, webOS and Tizen clients.
- Multi-module **MVVM** architecture; Media3 playback; analytics across Firebase + Google Analytics 4.
- Applied **AI-assisted development** across the greenfield build — code generation and review over the Kotlin Multiplatform and multi-module layers.

Kotlin Multiplatform (KMP)

Kotlin

Jetpack Navigation · ViewModel · Room

Hilt

Media3

Coroutines / Flow

Firebase + GA4

webOS · Tizen

FreeCast, Inc.

May 2022 – Apr 2024 · 1 yr 11 mo

Android / Android TV / Fire OS Engineer · full remote

CONTRACT

- Led the **full migration of the legacy Java codebase to Kotlin**; introduced Use-Case + Clean Architecture and improved end-user UX.
- Implemented **HLS / DASH** playback for **live linear TV and VOD** with Widevine DRM-protected streaming; integrated Google Cast and a paid subscription gateway.
- Maintained and developed companion apps on **webOS and Tizen** alongside the Android TV / Fire OS surfaces.
- Integrated **OTA tuner platforms** (HDHomeRun, AirTV, Alticast, PDAQ) with GStreamer-based media pipelines for secure live broadcast over HLS / DASH.
- Owned **DRM, EPG, tuner orchestration, transcoding**, and multi-device streaming end-to-end.
- Shipped on Google Play (*Select TV Android*, *FreeCast Watch*) and Amazon (*FreeCast Watch Fire OS*).
- Used **AI-assisted development** on the Java-to-Kotlin migration and on widening test coverage.

Kotlin

Jetpack Compose

Hilt

Coroutines / Flow

Media3

Room · DataStore

Retrofit2

Picasso

Firebase Analytics · Crashlytics · FCM

Mixpanel

webOS · Tizen

HDHomeRun · AirTV · Alticast · PDAQ

GStreamer

Widevine DRM

Uber Technologies

May 2021 – May 2022 · 1 yr

Android Engineer · Maps SDK team · via Matchpoint Solutions · full remote

CONTRACT

- Worked on the **Maps team SDK** module — JNI/C++ bindings between Uber's native Maps engine and the Android client.

- Worked in Uber's **RIBs** architecture inside the internal monorepo (not the public repository); the SDK module shipped into Uber Rider, Uber Eats and Uber Driver.
- Operated inside a 10K+ engineer codebase using **Buck, Flipper**, custom analytics / logger / crash reporter and a feature-by-module architecture.

Java · Kotlin C++ · NDK · JNI Groovy Python · SQL RIBs Buck CMake Flipper
 Firebase

FreeCast, Inc.

Mar 2021 – May 2021 · 2 mo

Android / Android TV / Fire OS Engineer · full remote **CONTRACT**

- Opening engagement on the Select TV Android and FreeCast Watch codebases, starting the migration from Java to Kotlin.

Super Revendedores

Oct 2018 – Feb 2021 · 2 yrs 5 mo

Android Engineer · full remote

- Migrated the full codebase from Java to Kotlin; implemented **online payment gateway**, virtual showcases and an SSO link to a partner web ordering portal.
- Built scalable asynchronous order processing on **AWS SQS / SNS** for reliable queuing and notification delivery.

Kotlin AWS (SQS · SNS · Storage) Firebase (Firestore · Auth · Remote Config · IAM · FCM)
 Facebook OAuth DbFlow Dagger 2 MVP Retrofit2

Concrete · an Accenture Company

Dec 2016 – Oct 2018 · 1 yr 10 mo

Jr. Android Engineer

- Built the **Minha CVC** travel app from its initial implementation as part of the agency team — **1M+ downloads**; shop geolocation directing customers to physical stores; itinerary feature reducing customer-service call volume.
- Worked on **Getnet**; migrated MVP to MVVM; introduced RxJava2 and LiveData.

Java 8 Kotlin RxJava2 · LiveData MVP → MVVM Dagger 2 Google Maps API
 Retrofit2 · Picasso Firebase Jenkins CI/CD

PraPagar (fintech)

Jun 2015 – Dec 2016 · 1 yr 6 mo

Jr. Android Engineer · collaborating with US team (MaxxPotential)

- Built mobile payments via **QR code and geolocation**; first Android + Laravel REST experience.

Android PHP · Laravel 5 REST OOP · Design Patterns

IBM Brasil

Jun 2014 – Dec 2014 · 7 mo

Software Engineering Intern · Rio de Janeiro · while pursuing B.S. at Instituto Infnet

- Wrote **SQL queries against IBM DB2** in support of contract and sales teams; produced reporting spreadsheets and Hyperion-based BI artefacts.
- Documented internal processes via SharePoint; first professional exposure to enterprise databases, REST APIs, and Agile workflows.

IBM DB2 SQL IBM Hyperion SharePoint Python REST APIs Git

FASOLTI · Fábrica de Soluções em TI

Jan 2014 – May 2014 · 5 mo

Test Developer · **INTERNSHIP**

- Documented and implemented automated test cases in **Selenium with TestNG**.

§ 03 Published Applications

APP STORE • GOOGLE PLAY • SHIPPED UNDER MY OWN DEVELOPER ACCOUNTS



Archive — Home Video Player

APPLE TV (TVOS)

Native SwiftUI tvOS client for a self-hosted media library: HLS playback, server-side transcoding, library browsing and resume across devices.

Swift, SwiftUI, tvOS, AVFoundation, HLS



Beer Price Calculator

ANDROID — GOOGLE PLAY

Compares beer prices by volume to find the best value per millilitre. Offline-first with local persistence and in-app billing.

Kotlin, Jetpack Compose, Room, Play Billing



Beer Price Calculator

IPHONE & IPAD (IOS)

Native SwiftUI build of the same price-per-volume comparison app for iPhone and iPad.

Swift, SwiftUI, iOS

§ 04 AI-Native Engineering Practice

BUILT AND RUN ON MY OWN MACHINES AND TIME • NOT IN ANY CLIENT CODEBASE

Multi-provider LLM orchestration

A dispatch daemon routing coding work across my own seven-machine fleet, exposed to the orchestrating agent as **15 MCP tools**.

- Cost-aware routing over **8 providers and 22 models in 6 tiers**, applying rate-limit backoff, per-provider cooldowns and capability matching in order.
- Flat-rate providers are marked **serial-only**, so a parallel fan-out cannot burn a subscription's concurrency limit.
- Encrypted job transport keyed off the existing SSH identity — **RSA-OAEP + AES-256-GCM**, fresh key and nonce per message — with five-source peer discovery under an explicit precedence ladder.

Instrumentation as a definition of done

I authored a language-neutral **trace-contract** standard: the compile-time reference graph is the specification, and the runtime trace is reconciled against it automatically.

- Ships a written spec, JSON Schemas, a cross-language conformance oracle, a golden-case corpus, and an agent plugin whose hook blocks completion while the graph is stale.
- Gate severity is scoped — agent-authored edits block at the definition of done; human commits degrade to a lint error, never a test failure.

Closed-loop evaluation on my own TV app

My personal tvOS and Android TV media player exposes an on-device HTTP diagnostic surface — trace, state, screenshot, scripted navigation, and **149 named test routines**.

- Each routine declares required parameters and returns a structured pass/fail or a machine-readable 422. An agent drives the app, captures what the screen actually shows, reads the emitted events and evaluates against the contract.

- Compiled out of release builds.

Fleet operations

Manifest-driven deployment across five personal machines under launchd, systemd and Task Scheduler.

- Each application declares its install, launch and health contract; deployment is a git push. Supervision and auto-update run on decoupled intervals so a crash restarts in seconds. Cross-machine control is RSA-signed per request.

§ 05 Selected Personal Work

INDEPENDENT · OPEN SOURCE · RESEARCH

Arquive — backend for the Archive tvOS app above

Self-hosted personal media archive & streaming server. In-browser **HLS playback** with GPU-accelerated transcoding cache, **IPTV** (M3U + XMLTV EPG + recording), DLNA/UPnP for smart TVs, distributed GPU-fleet transcoding, FAISS-backed face recognition, local-AI captions via Ollama, plus a native **Apple TV (SwiftUI)** client.

Python

React

HLS · GPU Transcoding

FAISS · InsightFace

Ollama · Qwen2.5-VL

DLNA

M3U · XMLTV

SwiftUI tvOS

DynamicMusicApp

Android music player with **three pluggable design systems** users switch at runtime — *Material You* (Google), *Neon Wave* (synthwave), and *Organic Flow* (botanical). One Compose codebase, three radically different visual identities — design-system theming treated as a first-class architectural concern.

Kotlin

Jetpack Compose

Material 3

MVI

Coroutines / Flow

Hilt

§ 06 Education

FORMAL · CONTINUING

Instituto Infnet · Rio de Janeiro

2013 — 2018

B.S. Computer Engineering — software development, mathematical modelling, OS & hardware architecture.

§ 07 Technical Stack

CORE COMPETENCIES

CORE

Android

Applied AI / LLM

Kotlin

ANDROID · TV

Android SDK

Android TV

Fire OS

webOS · Tizen

Jetpack Compose

Leanback

Kotlin Multiplatform

NDK · JNI

STREAMING

Media3 / ExoPlayer

HLS · DASH

Live · VOD

Widevine · PlayReady

SSAI · CSAI

Google IMA

GStreamer

ARCHITECTURE

MVVM · MVI

Clean Architecture

Use Case

Multi-module

Coroutines · Flow

Hilt · Dagger 2

AI SYSTEMS

Agent orchestration

MCP

RAG · vector search

Evaluation harnesses

Local inference

Python

DELIVERY

JUnit · Mockk · Robolectric · Espresso

Gradle

GitHub Actions

Jenkins

Jira