

# Raphael Bernardo

Senior Android Engineer • *Ex-Uber* • *Native*  
(*JNI/C++*) • *Kotlin*

A decade across Uber Maps SDK, Architecture,  
Jetpack Compose & broadcast-grade  
streaming at scale.

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## § 01 Summary

PROFILE • POSITIONING

**Senior Android engineer with cross-stack reach — Uber Maps SDK (JNI/C++), Architecture, Jetpack Compose, and broadcast-grade streaming.** Ten-plus years shipping production apps inside large engineering organisations — from Uber's 10K+ engineer global codebase (RIBs, Buck, native NDK/JNI) to greenfield Android TV and Fire OS frameworks at broadcast scale. As an independent contractor I run multiple client engagements in parallel — at any given time only one is full-time, with the rest as part-time concurrent contracts.

**Nexstar Media Group, Inc.**

Aug 2025 – Present · current

Senior Fire OS / Android TV Engineer · via Nimble.LA · full remote

FULL-TIME CONTRACT

- Architected an enterprise **OTT streaming framework** powering **50+ 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, FairPlay**) with both server-side and client-side ad insertion.
- Integrated **12+ analytics platforms** (Adobe Analytics, mParticle, Nielsen DCR, ComScore, Permutive, BlueConic) under GDPR / CCPA compliance.
- Delivered TV-optimised auth (passwordless, magic link, QR-code), entitlement & flexible paywall, and zero-downtime feature rollouts across **50+ product flavors** 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.

Kotlin

Coroutines / Flow

Media3 / ExoPlayer

Dagger 2

Retrofit2

Moshi

Glide

Android Leanback

Jetpack (Nav, ViewModel, Room)

Firebase

Google IMA

Adobe Marketing SDK

mParticle

Nielsen

ComScore

New Relic

Mux Analytics

JUnit · Mockk · Espresso

**FreeCast, Inc.**

Mar 2021 – Jul 2025 · 4 yrs 5 mo

Android / Android TV / Fire OS Engineer · full remote

LONG-TERM PART-TIME 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*).

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

**Claro TV+**

Apr 2024 – Dec 2024 · 9 mo

Android TV / Fire OS Engineer · full remote

CONCURRENT PART-TIME CONTRACT

- Greenfield Android TV / Fire OS app for one of Brazil's largest pay-TV operators; **4K streaming** via DASH / HLS with multi-DRM.
- Architected 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.

Kotlin Multiplatform (KMP)

Kotlin

Jetpack Navigation · ViewModel · Room

Hilt

Media3

Coroutines / Flow

Firebase + GA4

webOS · Tizen

## Uber Technologies

May 2021 – May 2022 · 1 yr

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

CONCURRENT PART-TIME CONTRACT

- Worked on the **Maps team SDK** module – JNI/C++ bindings between Uber's native Maps engine and the Android client.
- Contributed to Uber's open-source Android architecture framework (**RIBs**); shipped to 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

### Invillia

Apr 2020 – Aug 2020 · 5 mo

Android Engineer · full remote PART-TIME CONTRACT

- Re-modelled the home page of **Casas Bahia** and **Pontofrio** – converted a static product shelf into a fully dynamic, backend-driven shelf system.
- Implemented end-to-end analytics tracking for product clicks and shelf scroll-depth via Firebase Analytics and custom API calls.

Kotlin

MVVM

Dagger 2

LiveData

Retrofit2

Picasso

Firebase (Analytics · FCM · Remote Config · Crashlytics)

Jenkins CI/CD

### 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 11 mo

Jr. Android Engineer

- Built the **Minha CVC** travel app from scratch – **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 7 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

### FASOLTI · Fábrica de Soluções em TI

Sep 2014 – Jan 2015 · 5 mo

Test Developer · INTERNSHIP

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

**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

# Raphael Bernardo

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## § 03 Selected Personal Work

INDEPENDENT · OPEN SOURCE · RESEARCH

### Arquive

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

### Socials Automator

End-to-end Instagram carousel generator — AI writes the captions, AI generates the images, then auto-posts. Live at [@ai.for.mortals](https://@ai.for.mortals). Runs on **100% local AI** (LM Studio + ComfyUI) at zero cost, with cloud fallback (Z.AI, OpenAI, Groq, Gemini, fal.ai). Smart slide-count selection, post-history awareness, scheduled loop mode.

Python LM Studio ComfyUI · Stable Diffusion  
Z.AI · OpenAI · Groq · Gemini  
Instagram Graph API Cloudinary

### 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

### Infinite Research

Autonomous AI research system that refines documents through infinite self-learning iterations. **Agno agents** orchestrate **1–10 parallel DuckDuckGo searches** per iteration; each pass evolves search terms and patches identified gaps. Local LLMs via **LMStudio**, vector-DB RAG over prior refinements, SQLite versioning, graceful shutdown.

Python Agno Agents LMStudio (local LLM)  
RAG · Vector DB DuckDuckGo Search SQLite

## § 04 Education

FORMAL · CONTINUING

### Instituto Infnet · Rio de Janeiro

2013 – 2018

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

### Chiswick House School (Malta)

1997 – 2005

K-12 / High School Diploma.

### Orion Consulting · Rio de Janeiro

2010

Java fundamentals — OOP, software design, code patterns and logic.

## § 05 Technical Stack

REFERENCE · ATS INDEX

LANGUAGES

Kotlin Java C++ TypeScript JavaScript Python Groovy SQL

MOBILE / TV

PHP (Laravel)  
Android SDK Android TV Fire OS webOS Tizen Android Leanback  
Jetpack Compose Compose for TV Kotlin Multiplatform (KMP) NDK · JNI

STREAMING · MEDIA

OTT CTV (Connected TV) Linear TV VOD Live Streaming  
Media3 / ExoPlayer MediaCodec HLS LL-HLS DASH CMAF H.264 / AVC  
HEVC / H.265 HDR10+ AAC Hardware-accelerated decoding Widevine  
PlayReady FairPlay Google IMA SDK SSAI · CSAI GStreamer  
HDHomeRun · AirTV · Alticast · PDAQ

ARCHITECTURE

MVVM MVI Unidirectional Data Flow Clean Architecture Use Case  
Multi-module RIBs MVP Plugin-based integration

JETPACK · REACTIVE

Coroutines · Flow SharedFlow · StateFlow LiveData  
ViewModel · Navigation Room · DataStore Hilt · Dagger 2 RxJava2

CLOUD · BACKEND

Firebase (Analytics · Crashlytics · FCM · Auth · Firestore · Remote Config · IAM)  
AWS (SQS · SNS · Storage) Supabase PostgreSQL REST APIs  
Retrofit2 · Moshi

ANALYTICS

Adobe Analytics Adobe Marketing SDK mParticle Nielsen DCR ComScore  
Permutive BlueConic New Relic Mux Mixpanel Google Analytics 4

TESTING · BUILD

JUnit Mockk Robolectric Espresso Paparazzi (screenshot)  
Turbine (Flow testing) Selenium · TestNG Buck Gradle CMake  
Jenkins CI/CD Flipper

PERFORMANCE · OBSERVABILITY

Quality of Experience (QoE) Time-to-First-Frame (TTF) Rebuffering rate  
Startup-time optimisation Systrace Perfetto Android Profiler

COMPLIANCE · ACCESSIBILITY

GDPR CCPA WCAG 2.2 TalkBack · d-pad focus order  
DRM & Content Security OAuth · SSO

LANGUAGES (SPOKEN)

Portuguese (native) English (fluent)