

Khalid A. B.

Senior Senior Software Engineer/AI & Agentic Systems

SUMMARY

- Software Engineer with 20 years of programming experience across banking, government, and healthcare, including regulated payment systems.
- Delivered a PIX instant-payment solution for a major Brazilian bank using Java, Spring Boot, and AWS, leading 11+ engineers and QA.
- Architected and built a multi-tenant B2B SaaS platform covering ERP, CRM, billing, and payments, with idempotent webhooks, usage metering, and cost controls.
- Experienced in PCI DSS v4.0.1 self-assessment, LGPD compliance, vulnerability remediation, Kubernetes, GKE, and CI/CD pipelines.
- Delivered production agentic AI systems with formal model evaluation.
- Experienced in TypeScript, NestJS, React, Angular, and Svelte.

TECHNICAL SKILLS

Main Technical Skills	TypeScript, Java, Python, Go, Kotlin
Programming Languages	Assembly, C#, C++, Dart, Go, Java, Kotlin, Objective-C, PHP, Python, Swift, TypeScript
AI & Machine Learning	AI, AI/ML, CrewAI, LangChain, LangGraph, LLM, NumPy, PyTorch, Scikit-learn, Whisper
JavaScript Frameworks	Angular, NestJS, Next.js, Node.js, React, Svelte
JavaScript Libraries and Tools	Electron, React Hooks, React Native
Python Frameworks	FastAPI, Flask
Mobile Frameworks and Libraries	Flutter, Xamarin
Android Libraries and Tools	Kotlin
.NET Platform	.NET
Python Libraries and Tools	NumPy, Pandas, PyTorch, Scikit-learn
Salesforce Ecosystem	Salesforce
Java Frameworks	Spring Boot
Data Analysis and Visualization Technologies	ETL, Pandas
Security	PCI DSS



Databases & Management Systems / ORM	MariaDB, MongoDB, MySQL, PostgreSQL, Redis
Cloud Platforms, Services & Computing	AWS, CloudFlare
Google Cloud Platform	Google Kubernetes Engine (GKE)
Industry Domain Experience	HIPAA, SAAS
Platforms	ABM (Apple Business Manager), Android, CRM, ERP, Salesforce
SDK / API and Integrations	API, FastAPI, Instagram API, JWT, MCP, PayPal API, YouTube API
Third Party Tools / IDEs / SDK / Services	AppCenter, App Center (CodePush)
QA, Test Automation, Security	Authorization
Message/Queue/Task Brokers	BullMQ, RabbitMQ
iOS Libraries and Tools	CallKit
Deployment, CI/CD & Administration	CI/CD, Flux
Virtualization, Containers and Orchestration	Docker, Docker Compose, Kubernetes
Codecs & Media Containers	Ffmpeg
Version Control	Github Actions
Operating Systems	iOS, Linux
Mail / Network Protocols / Data transfer	JWT, nfs, VoIP, WebRTC
Methodologies, Paradigms and Patterns	Kanban, Scrum
Web/App Servers, Middleware	Nginx
Marketing skills and tools	SEM (Search Engine Marketing)
Logging and Monitoring	SIP
Other Technical Skills	ABM, Agentic AI, Asaas, boleto, Flask-Socketio, Google Kubernetes Engine, LGPD, LLMs, PIX, Speech-to-Text, TTS

WORK EXPERIENCE

Principal Engineer/Technical Lead, Trusom Innovation (TruARM and TruHail Platforms)

Jul. 2017 - Present

Summary: A technology company providing custom software development and IT services. It develops web and mobile applications, SaaS platforms, and white-label solutions. Its services include system integration, business process automation, cloud infrastructure, and ongoing software maintenance.

Responsibilities:

- Architected and built TruARM, a multi-tenant B2B SaaS platform offering ERP/CRM, scheduling, billing, WhatsApp automation, and NFS-e e-invoicing with LGPD compliance.
- Developed Banking-as-a-Service integration with Asaas, including subaccounts, PIX, boleto, card charges, payment links, refunds, and transfers.
- Built TruHail, an urban mobility platform with React web app, React Native passenger and driver apps, and backend with per-tenant feature flags and brand configuration.
- Designed a live AI voice agent over WebRTC for inbound calls combining real-time audio, speech-to-text, LLM reasoning, and voice synthesis.
- Architect and develop core product features using a self-built TypeScript framework, NestJS, MariaDB, and Redis.
- Implement payment systems including Asaas BaaS integration, payment splits, automatic billing, and dunning scheduler.
- Design idempotent payment webhooks with state machine and regression tests.
- Integrate Meta Marketing API for campaign management and CRM attribution.
- Scope payment flows to PCI DSS v4.0.1 SAQ D and implement security controls including tokenization, log redaction, and script integrity checks.
- Operate production environment using Docker Compose and manage CI/CD pipelines with GitHub Actions.
- Develop urban mobility platform apps and backend with feature flags and brand configuration.
- Design and develop AI voice agent over WebRTC integrating speech-to-text and voice synthesis.

TypeScript, NestJS, MariaDB, Redis, Asaas Banking-as-a-Service, PIX, boleto, card tokenization, Meta Marketing API, React, React Native, WebRTC, Docker Compose, GitHub Actions, Nginx Proxy Manager, Cloudflare.

Senior Architect, BRQ Digital Solutions (Next (Bradesco)) (PIX Instant-Payment Implementation)

Jan. 2020 - Apr. 2021

Summary: A digital banking platform providing financial services through web and mobile applications. It supports account management, payments, transfers, credit cards, investments, and digital financial transactions. It operates as part of a larger banking organization.

Responsibilities:

- Delivered the PIX instant-payment system for Next, a top-5 Brazilian bank, meeting the Central Bank's mandated deadline



- The project involved building the PIX backend using Java and Spring Boot on AWS infrastructure
- Led a team of 11+ engineers and QA professionals.
- Owned architecture decisions and ensured code quality.
- Conducted technical hiring interviews.

Java, Spring Boot, AWS.

Software Engineer (iOS Lead), G&P (Poupatempo Digital and São Paulo State Government Apps)

Sep. 2019 - Jul. 2022

Summary: A digital government services platform that enables users to access public services through web and mobile applications. It supports appointment scheduling, digital document access and signing, and requests for government services.

Responsibilities:

- Led iOS development for the São Paulo State citizen-services and maintained related government service apps including Serviços SP, Detran, and CPTM.
- Designed a hybrid VIP/VIPER architecture to facilitate adding new government services without re-architecting.
- Developed web front ends in React and an environmental-management app in Flutter for a São Paulo State secretariat.
- Managed releases and performed code reviews.
- Reviewed third-party dependencies for security.
- Maintained multiple government service apps.
- Developed web front ends and Flutter apps.

iOS (Swift, Objective-C), VIP/VIPER architecture, React, Flutter.

Solution Analyst, everis (NTT Data) (Amil Mobile App and Santander Pi Investimentos Integration)

Feb. 2019 - Sep. 2019

Summary: A healthcare organization providing health insurance, medical services, and hospital care. It supports health plan administration, access to healthcare providers, and patient services. Its operations include digital healthcare systems and insurance management processes.

Responsibilities:

- .NET, C#, and Xamarin within a large cross-functional team.
- Integrated Salesforce with native mobile apps for Santander Pi Investimentos.
- Architected mobile applications for healthcare and finance clients.
- Collaborated within a cross-functional team of 30+ members.
- Integrated Salesforce with native mobile apps.

.NET, C#, Xamarin, iOS, Android, Salesforce.

Earlier Experience (Full-Stack, Mobile and Low-Level Development)

2006 - 2019



Software Engineer/Developer, Macro Connect Cashback Platform

Summary: A cashback platform that enables users to earn rewards on eligible purchases. It supports transaction tracking, cashback calculation, reward management, and payment processing. The system integrates purchase data with cashback and customer account workflows.

Responsibilities:

- Full-stack development of cashback platform features using React, Node.js, and Java technologies.

React, Node.js, Java.

Sole Engineer, Beach Paquera Location-Based Social App

Summary: A location-based social networking application that enables users to discover and connect with people nearby. It supports user profiles, location-based discovery, messaging, and social interactions through a mobile platform.

Responsibilities:

- Built social app initially as a native Android app in Java, later ported to C#/Xamarin to support both iOS and Android from a single codebase.
- Developed a PHP/C++ server backend with MySQL database.
- Built backend server and managed database.

Java (Android), C#, Xamarin, PHP, C++, MySQL.

IT Lead and Engineer, Convert Mkt and General Technology SARL (Healthcare Web Platforms and ERP Systems)

Summary: Led IT and developed healthcare web platforms at Convert Mkt. At General Technology SARL (Morocco), fixed a truck-tracking navigation system, customized an open-source PHP ERP, and built financial systems, e-commerce, and web portals

Responsibilities:

- Led IT operations and development for healthcare platforms.
- Fixed critical navigation system issues.
- Customized ERP and developed financial and e-commerce systems.

PHP, ERP systems, Web development.

Developer and Owner, FastCode Mobile Firmware and Repair Platform

Summary: Built and operated FastCode, an automated platform for mobile firmware, unlock services, and repair tools. The platform included a Delphi server and desktop client reading device memory, and integrated PayPal credit system.

Responsibilities:

- Developed server and desktop client software.
- Managed payment integration and platform operations.



Delphi, PayPal API.

Developer and Owner, Phone Store and Custom PHP ERP

Summary: Owned and ran a phone store and developed a custom PHP ERP system to manage business operations.

Responsibilities:

- Developed and maintained custom ERP system.
- Managed store operations.

PHP.

Low-Level Engineer and Reverse Engineer, OS Kernel and Early Android Modifications

Summary: Developed an OS kernel in C including boot sector, GDT, and file system. Worked with Delphi, GRUB, Linux applications, early Android modifications, and reverse engineering.

Responsibilities:

- Developed low-level OS components and boot code.
- Performed reverse engineering and system modifications.

C, Delphi, GRUB, Linux, Android.

Selected Projects

Architect and Sole Engineer, TruReach Agentic Video-Generation Platform

Summary: Built an orchestrator that converts scripts into finished videos with scene segmentation, voice cloning, avatar lip-sync, B-roll, assembly, captions, and branding. Integrated multiple providers for images, video, and voice cloning with cost accounting and compliance features.

Responsibilities:

- Architected and developed the entire video-generation pipeline.
- Integrated multiple third-party providers with adapter contracts.
- Implemented cost tracking and consent registry for compliance.

Python, LLMs, voice cloning, video processing, adapters for FLUX, Seedream, Hedra Character-3, Kling O3, Chatterbox, Whisper.

Architect and Engineer, Autonomous Code-Generation Pipeline with In-House Model Benchmark

Summary: Built an agent pipeline that automates work items to reviewed pull requests with an automated definition-of-done gate. Conducted controlled benchmarks across competing LLMs using statistical tests and replaced diff-based checks with execution-based checks.

Responsibilities:

- Developed autonomous code-generation pipeline with quality gates.



- Performed LLM benchmarking and evaluation.

Python, LLMs, statistical testing.

Researcher and Engineer, KADEX Deep Learning Research on Time Series

Summary: Built a Bitcoin forecasting ensemble of 12 PyTorch models with online Bayesian weighting and stacking, evaluated with walk-forward testing and controls. Developed dashboard with Angular and backend with Flask-SocketIO.

Responsibilities:

- Developed and evaluated deep learning models for time series forecasting.
- Built data pipelines and interactive dashboard.

Python, PyTorch, pandas, numpy, scikit-learn, MariaDB, Redis, Flask-SocketIO, Angular.

Engineer, iKomida Microservices Platform

Summary: Developed a 31-repository microservices platform with 11 domain services, queue workers, shared libraries, and Svelte apps for web, iOS, Android, and desktop. Managed Kubernetes manifests and deployment pipelines for Google Kubernetes Engine with autoscaling and security configurations.

Responsibilities:

- Developed microservices and front-end applications.
- Configured Kubernetes deployments and CI/CD pipelines.
- Implemented security and authorization mechanisms.

TypeScript, RabbitMQ, Svelte, Capacitor, Electron, Kubernetes (GKE), GitHub Actions, Cloud Build, JWT.

EDUCATION

• Technologist Degree in Systems Analysis and Development

Brazilian applied higher-education degree in computing at Centro Universitário ETEP (classes through UniBF)
2023 - 2025

• BSc Biomedical Sciences

UniCesumar (transferred from Universidade Positivo)
2025 - present (expected 2029)

