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Pierre Robentz Cassion

Software Architect & Principal Software Engineer

Software architect with 11 years designing, shipping and running production systems — from the HIV and OVC program platform of Caris Foundation to government, mobile health and AI applications. I design modular backends (Spring Boot, .NET, Node.js), modern frontends (Next.js, Flutter) and cloud infrastructure as code (AWS, Terraform), lead development teams, and teach computer architecture at the State University of Haiti.

11 years

building production software
since 2015

Team lead

since 2020; IT Manager since
2022

5 stacks

Java, C#, TypeScript, Python,
Dart/Kotlin

IaC

AWS with Terraform and
CloudFormation

Technical skills

Architecture	Modular monoliths (Spring Modulith), Clean and hexagonal architecture, microservices (Spring Cloud: Eureka, Gateway, Resilience4j), event-driven (Kafka, BullMQ), REST/OpenAPI contracts
Backend	Java 21–25 / Spring Boot 3–4, C# / .NET 10 / EF Core, Node.js / Express, Python / FastAPI, PHP / CodeIgniter, Django
Frontend & mobile	Next.js, React, TypeScript, Astro, Tailwind CSS; Flutter, Kotlin / Jetpack Compose (Hilt, Room)
Data & AI	PostgreSQL, MySQL, Oracle (tuning), MongoDB, Redis; pandas, R/Quarto; PyTorch, LangGraph, Claude API, RAG
Cloud & DevOps	AWS (EC2, RDS, ECS Fargate, S3, SES, SSM), Terraform, CloudFormation, Docker, GitHub Actions, Cloudflare Workers, Keycloak, Testcontainers
Engineering practice	Unit, integration and E2E testing (JUnit, Vitest, Cypress, Testcontainers), CI/CD, code review, architecture decision records, security and performance audits
Health tech	CommCare, ODK, XForms, EHR design, data pipelines for donor reporting (USAID, CDC, IDB)

Experience

IT Manager & Principal Software Engineer | Caris Foundation International Jan 2022 – present
Port-au-Prince, Haiti · NGO running HIV, PMTCT, OVC and nutrition programs with USAID, MSPP and CDC

- Architecting the unified multi-site EHR that replaces the legacy monolith: Spring Boot 4 with Spring Modulith (9 bounded modules), PostgreSQL/Flyway, Keycloak, Next.js 16 in 3 languages, OpenAPI contracts and Terraform — specified against 122 requirements, with a migration plan for 4 million legacy rows.
- Moved the production platform to AWS with Terraform (EC2, RDS, SES, S3, SSM) and GitHub OIDC deployments; added integration tests, a security review and a performance audit.
- Lead the development and IT help-desk team: planning, code review, cloud deployments and AWS budget, and deliverables for donor reporting.
- Built AI and mobile products for the programs: a LangGraph chatbot for GBV survivors on WhatsApp, Telegram, Messenger and web with human escalation; VeySante (Kotlin, Room/SQLCipher, Claude API); NutriCareHT (Flutter, Firebase, OpenAI) on Google Play with 494 automated tests.

Senior Software Engineer (team lead) | Caris Foundation International Jan 2020 – Jan 2022

- Designed CommCareBridge, the Node.js service that ingests CommCare and ODK submissions into the production database — queued with BullMQ/Redis, monitored with Sentry, structured as a handler registry; still in production.
- Built the DREAMS and MUSO program management systems (PHP, React, MySQL) and linked beneficiaries across programs to remove double counting from USAID reports.

IT Programmer | Caris Foundation International Jun 2015 – Jan 2020

- Built EID and PMTCT reporting tools, an automated patient alert system for health workers and indicator dashboards; upgraded the platform from CodeIgniter 2 to 3.

Project Analyst Consultant | Dimagi Inc. (USA)

Sep 2020 – present

Part-time consultancy · CommCare platform of FAES, Haiti's social and economic assistance fund

- Build and run the CommCare platform behind FAES's IDB-funded youth employment and cash-for-work operations (HA-L1137, HA-J0001, HA-J0005, HA-J0007) — now 500 mobile users across operators PADF, Viva Rio, CARE, CECI, AVSI and Zanmi Lasante.
- Integrated biometric identification with One Click (fingerprint de-duplication, POS devices) and mobile-money payments with MonCash and LajanCash/HaitiPay, generating payment orders from attendance cycles.
- Extended the platform to WFP's Resilience program: 26 community projects in Nippes, Nord-Ouest and Grand'Anse with WHH, Caritas and CECI — project data, candidate lists and attendance-based payments.
- Set up IDB results indicators and reporting (CommCare UCR, Superset); produced QA test plans, user guides and training (including payroll generation) for FAES and NGO staff; represent Dimagi in project meetings with FAES and the IDB.

Software Consultant | UNOPS

2020 – 2021 · 2026

For Haiti's Ministry of Education (MENFP)

- 2026: co-developed the school evaluation module of the national accreditation platform — versioned REST API, hexagonal domain for grid scoring, CSV/JSON/XML grid import with validation (Java 21, Spring Boot 3 WebFlux, R2DBC, PostgreSQL).
- 2020–2021: automated the transfer of UNOPS field data into MENFP systems through their API (Python, FastAPI, pandas, MongoDB).

Professor of Computer Architecture & Microprocessors | State University of Haiti

Jun 2019 – present

Campus Henry Christophe, Limonade

- Teach computer architecture and microprocessors to engineering students. Also Vice-President for Training, Research & Outreach of AAFDS, the Faculty of Sciences alumni association.

Earlier consulting | Bisoftlab (Upwork) · Noukod Foundation

2017 – 2018

- Hospital management system with a secure API for a mobile app (Symfony API Platform, React/Redux); teacher-training and portfolio system for the Digicel Foundation, deployed on AWS (Symfony, MySQL).

Selected projects**DeepBridge — AI carotid stenosis measurement**

MBDS capstone · ML lead, 2026

Clinical decision aid measuring stenosis from CT angiography with zero-shot segmentation (TotalSegmentator) and MedSAM2 correction propagation; results on 122 of 135 usable series. .NET 10 Clean Architecture API, Python/FastAPI ML worker, Next.js with Cornerstone.js, Keycloak.

HealthBooking — medical appointment platform

Solo, 2026

.NET 10 Clean Architecture running on PostgreSQL, SQL Server or MySQL, integration-tested on all three with Testcontainers; AWS CloudFormation for ECS Fargate, RDS and ALB.

Tyekem — dating and social platform

Founder · tykem.com

Next.js and Flutter clients on Supabase (Postgres, 89 migrations, row-level security, edge functions), real-time chat, push notifications and moderation console.

Cassion Learning — data analysis courses

data-analysis.cassion.dev

42 courses and 336 lessons on Astro and Cloudflare Workers (D1, KV, R2) with Better Auth and Drizzle.

Education**Master 2 MBDS — Mobility, Big Data & Systems Integration** | UEH / Université Côte d'Azur

2025 – 2026

Engineering degree, Electronics | Faculty of Sciences, State University of Haiti

2010 – 2015

Certifications, awards & languages

- **Certifications:** CommCare Certified (2017) · Machine Learning, Stanford/Coursera (2018) · Deep Learning, Coursera (2018) · TensorFlow, DeepLearning.AI (2020) · Azure for Data Engineering (2022) · ASP.NET Core Web APIs (2022) · Monolith to Microservices (2023)
- **Awards & talks:** Winning team, CONATEL × BRH hackathon (2016) · World Bank × Code for Resilience hackathon (2014) · Machine learning workshop, Port-au-Prince Startup Week
- **Languages:** Haitian Creole and French (native), English (fluent), Spanish (basic)