

Betini Akarandut

Full-Stack Engineer | Python/FastAPI · React/TypeScript · Backend-heavy

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PROFESSIONAL SUMMARY

Backend-heavy full-stack engineer who takes products from database and APIs through frontend interfaces and real-time experiences to deployment. At SUBSEL, a pre-launch fintech and marketplace platform I co-founded, I built both the FastAPI backend and the React/TypeScript client: wallet ledger, payments, real-time multiplayer gameplay and a permission-gated admin console.

At TracTrac Mechanisation Services Limited (60,000+ users) I lead backend and infrastructure engineering, built the Next.js support console solo and build features in the admin dashboard and public website. On VITAL 2 I am the sole backend engineer and contribute React features. My centre of gravity is backend and systems engineering, which is what lets me own a product end to end.

CORE TECHNICAL SKILLS

Languages	Python, TypeScript, JavaScript, SQL
Backend & APIs	Python, FastAPI, Django REST Framework, Node.js / Express, SQLAlchemy, Pydantic; REST API design, OpenAPI, JWT/OAuth2, RBAC, audit logging
Frontend	React, TypeScript, Next.js, Vue.js, Vite, TanStack Query, Zustand, React Hook Form, Zod, Vitest, Redux, Tailwind CSS
Real-time	WebSockets, Redis pub/sub fan-out, presence and matchmaking, reconnect/resume, Kafka-backed delivery across workers
Data	PostgreSQL, PostGIS, row-level security, SQLite, MySQL, MongoDB, Alembic, Drizzle ORM; audit trails, Decimal-precision financial calculations, reporting and KPI systems
Cloud & DevOps	Docker, Docker Compose, Linux / VPS (Contabo), Coolify, Traefik, Nginx, Caddy, PgBouncer, Railway, Render, AWS EC2; GitHub Actions, health and readiness checks, migration-gated deployments, capacity modelling
Payments	Paystack (cards, virtual accounts, split payments, webhooks), VTPass, VTU.ng; wallet ledgers, escrow-style and payout workflows, refunds, reconciliation

PROFESSIONAL EXPERIENCE

Co-Founder, Product & Engineering Lead — SUBSEL Digital Services

Nov 2025 – Present

Remote · Pre-launch (no public users or revenue yet) · subsel.co

Fintech and marketplace platform: wallets, VTU, digital-product marketplace, rewards and merchant tools. I own product direction and wrote both repositories: the FastAPI backend and the React/TypeScript client.

- Built the React/TypeScript client (Vite, Zustand, React Hook Form + Zod, Vitest): marketplace, wallet, VTU, rewards and gameplay flows, with refresh-token handling and draft autosave.
- Built admin RBAC with granular permissions, audit logging and rate limiting, surfaced in a 22-page permission-gated admin console (finance, refunds, remittance reconciliation, moderation, vendors, audit log).
- Shipped real-time Whot card gameplay: a game engine with an AI opponent, PvP matchmaking and presence over WebSockets, Redis pub/sub fan-out across instances, reconnect/resume and a background reconciler for abandoned sessions.
- Built a wallet ledger where every balance change goes through one service, with row locking (SELECT ... FOR UPDATE), Decimal money and separate prepaid, reserved and earned pools.
- Re-architected the wallet as closed-loop in response to Paystack's compliance review: top-ups are spend-only, only earned money is withdrawable, and real-money games were suspended; the enforced rules are documented so any statement to the provider can be checked against code.

- Verified 10 financial invariants with behavioural tests that run duplicate, concurrent, failed and reversed settlements and re-check every invariant afterwards.
- Integrated Paystack (cards, dedicated virtual accounts, HMAC-verified webhooks), with VTpass and VTU.ng behind a provider abstraction.
- Made it production-ready: non-root Docker image, fail-fast production configuration checks, readiness probe, migrations gated before release and a backup/restore runbook.

Lead Backend/DevOps Engineer — TracTrac Mechanisation Services Limited

Feb 2025 – Present

Abuja, Nigeria · On-site

- Built the Next.js support console solo: unified login across both backends, live WebSocket ticket threads, delivery ticks, unread state and support-agent management.
- Built features in the Next.js admin dashboard (ISSAM programme reporting dashboards, workbook exports, pitch-challenge screening, scorecards and role access) and the public website (service worker, QR scanner, investment roadshow and pitch registration).
- Architect and operate two coordinated production FastAPI backends serving 60,000+ users: a shared users table, versioned event contracts in a shared tracrac-core kernel, and namespaced Kafka consumer groups and Celery queues, on PostgreSQL/PostGIS, PgBouncer, Redis and Kafka.
- Led an offline-first workflow for tractor and labour-saving-device requests in low-connectivity areas, built on idempotent create/sync APIs and batch reconciliation; it replaced a paid third-party data-collection tool and extended digital access to remote farming communities.
- Diagnosed intermittent production 502s on the admin dashboard: ruled out cache hit ratio, query time, locks, pool exhaustion and memory before tracing them to request fan-out (60+ requests for one screen); split the endpoint into single-purpose Redis-cached endpoints with capped pagination and page-1-only fetching, kept the old contract during migration, and recorded the decision as an ADR.
- Root-caused a cross-worker WebSocket delivery bug (each uvicorn worker held its own connection map) and fixed it with per-worker Kafka consumer groups and de-duplication.
- Migrated production from Render to a hardened, self-managed Contabo VPS with Coolify and Traefik (non-root deploy user, firewall, TLS), now operating 20+ containerised applications with staging, health checks and migration-gated deployments; right-sized capacity through capacity modelling.

Sole Backend Engineer + Frontend Contributor — VITAL 2 (Ikore International Development)

Feb 2026 – Present

Remote

- Delivered a production-ready FastAPI/PostgreSQL backend within six weeks; the platform onboarded 5,000+ farmers.
- Contributed React 19 / TanStack Query frontend features: admin metrics, DVS screens, campaign and kit-distribution administration, programme KPI views and a chunk-error boundary.
- Built programme reporting for partners: KPI and deliverable tracking, campaign drill-downs, history backfill and data-quality fixes (fuzzy matching, normalising combination-vaccine labels).
- Built offline synchronisation for field data capture in low-connectivity areas and hardened its idempotency so replayed submissions are applied once; batched mass email within Brevo's sending limits.

Backend/DevOps Engineer (Contract) — SolarAfRiC (Feexet Limited)

Apr 2026 – Jun 2026

Remote · Contract

- Engineered context-aware diagnostics on OpenAI GPT-4o-mini: vision input and structured JSON output grounded in equipment specifications, GPS location, nearby verified technicians, learning content and booking history, with multi-turn investigation and safety/severity escalation.
- Built a 7-state booking lifecycle with Paystack escrow-style payments, technician payout wallets, bank account resolution and a dispute workflow.

Backend Developer — Join Momentum

Jun 2024 – Jan 2025

Dover, Delaware, United States · Remote

- Designed scalable Django REST APIs for an AI-powered Job Simulator platform, reducing response time by 25%.

- Integrated OpenAI GPT and LangChain for automated candidate feedback, and automated certificate issuance via Certifier.io.

Backend/Mobile Engineer — Retiny

Mar 2024 – Jun 2024

Port Harcourt, Nigeria

- Designed APIs with Swagger documentation, 2FA, third-party OAuth and role-based mobile routes.

Backend/DevOps Engineer — ALX Africa

Jan 2023 – Oct 2023

Kigali, Rwanda · Software engineering programme placement

- Deployed APIs on AWS EC2 with logging, validation and error tracking.

Earlier: Backend internship at Scopex Technologies (2022); research work with Extern; community contribution with United People Global.

SELECTED FULL-STACK PROJECTS

SUBSEL — fintech and marketplace platform, built end to end (pre-launch) · [subsel.co](#)

React/TypeScript client and FastAPI backend designed together: row-locked Decimal wallet ledger, closed-loop compliance design, refund engine, real-time WebSocket gameplay and a permission-gated admin console.

FastAPI · PostgreSQL · SQLAlchemy · Alembic · WebSockets · Redis pub/sub · React · TypeScript · Vite · Zustand · React Hook Form · Zod · Vitest · Paystack · Docker

TracTrac Plus — offline-first agricultural mechanisation platform · [tractrac.co](#)

Offline-capable field workflows, mobile apps, a Next.js admin dashboard and support console, and CommCare feed two coordinated FastAPI backends over PostgreSQL/PostGIS, PgBouncer, Redis, Kafka and Celery.

FastAPI · PostgreSQL · PostGIS · PgBouncer · Redis · Kafka · Celery · WebSockets · Docker · Coolify · Traefik · Next.js · React · TanStack Query · Paystack · CommCare

VITAL 2 — field operations and programme reporting

Offline field capture, reversible bulk imports with audit trails, QR voucher campaigns and programme KPI reporting for partners.

FastAPI · PostgreSQL · Alembic · React · TanStack Query · QR generation · Brevo · RBAC

betiniakarandut.com — this portfolio · [betiniakarandut.com](#)

API-driven content over FastAPI and PostgreSQL, sections that load independently, and a code-gated CV service with short-lived signed links; migrations and content sync gate each deploy.

FastAPI · PostgreSQL · SQLAlchemy · Alembic · JavaScript · Vite · Caddy · Docker · Railway

Smart Brain · [github.com/betiniakarandut/smart-brain](#)

Face-detection web application with a React frontend and a Node.js/PostgreSQL backend.

EDUCATION

B.Eng. Chemical Engineering — University of Port Harcourt

2017 – 2024

Second Class Honours (Upper Division)

Professional training

- ALX Africa / Holberton School: Software Engineering programme (2022–2023), including backend specialisation and a backend/DevOps placement in Kigali, Rwanda.

CERTIFICATIONS & AWARDS

- Software Engineering Certification: ALX / Holberton School, 2023
- Web Development Certification: Zero To Mastery Academy, 2022
- AWS Certified Solutions Architect – Associate: in progress, expected 2026
- Hacktoberfest Winner: open-source contribution, 2022