

ZEYAD ALAGAMY

FULL-STACK PRODUCT ENGINEER

TypeScript / React / Next.js / Node.js / PostgreSQL | Reliable Workflows & AI Products

Cairo, Egypt | zeyad.alajamy@gmail.com | zeyadalajamy.com | LinkedIn | GitHub

ENGINEERING PROFILE

Product-minded full-stack engineer with 3+ years building production web systems from ambiguous requirements through architecture, data modelling, implementation, rollout, and support. Strongest in TypeScript, React/Next.js, Node.js, and PostgreSQL/Supabase. Experience spans reliable background processing, multi-tenant authorization, payments, AI/RAG, document automation, real-time media, and complex browser tooling. Combines frontend depth with database and reliability reasoning around concurrency, idempotency, partial failure, and production incident diagnosis.

CORE CAPABILITIES

End-to-end product ownership • React/Next.js architecture • Node.js APIs & workers • PostgreSQL schemas, RLS & transactions • Async reliability & idempotency • AI/RAG & embeddings • Authentication & multi-tenancy • Complex UI, documents & visualization • Production debugging

PROFESSIONAL EXPERIENCE

Full-Stack Product Engineer | Contract & Product Engineering

Remote | Apr 2023 - Present

- Own product slices from problem clarification and data modelling through React/Next.js interfaces, Node.js server paths, database migrations, external integrations, rollout, and production support.
- **Regulatory knowledge platform:** Reconstructed an email replay failure from delivery timing, quantified 2,469 excess sends across 53 retry waves, and replaced campaign-level retries with per-recipient durable state, normalized uniqueness, bounded PostgreSQL SKIP LOCKED claims, and an explicit ambiguous-delivery policy.
- **AI and RAG:** Built streaming knowledge workflows combining pgvector and PostgreSQL full-text search, reciprocal-rank fusion, bounded reranking, caller-scoped RLS hydration, context-window budgeting, compaction, caching, and durable response persistence.
- **Advertising and billing platform:** Hardened Stripe credit and automatic top-up flows with signed webhooks, atomic processing claims, event-keyed ledger idempotency, cooldowns, stale-state reconciliation, and one-time refunds for failed or timed-out AI generation tasks.
- **Multi-tenant content platform:** Migrated a bilingual CMS from single-tenant assumptions to tenants and memberships, JWT claims, tenant-scoped RLS, storage-prefix isolation, legacy data backfill, last-admin protection, and compensating recovery across Supabase Auth and PostgreSQL.
- **Document automation:** Built PDF/DOCX workflows with visual ratio-based annotation, deterministic measured layout, configurable overflow handling, shared preview/export rendering, signed outputs, and immutable generation snapshots.
- **Product interfaces:** Delivered role-aware administration, complex forms, real-time media capture, graph editors, concurrent upload workflows, offline media behaviour, localized content, spreadsheet/report tooling, and resilient loading/error/retry states.

TECHNICAL SKILLS

Languages: TypeScript, JavaScript, SQL, HTML, CSS

Frontend: React, Next.js App Router, React Server Components, Tailwind CSS, shadcn/Radix, TanStack Query/Table, Redux Toolkit, Zustand/Immer, React Hook Form, Zod, React Flow, SVG, Canvas

Backend & Data: Node.js, REST APIs, Server-Sent Events, WebSockets, webhooks, background workers, PostgreSQL, Supabase, row-level security, functions/triggers, transactions, row locking, pg_cron, pgvector, full-text search, Storage and signed URLs

AI & Integrations: OpenAI APIs and embeddings, retrieval-augmented generation, structured outputs, context/token management, Runway/RunPod orchestration, Stripe, Microsoft Graph, AWS SES

Documents & Delivery: pdf-lib, pdfjs, PDF/DOCX/XLSX/CSV processing, Docker, Firebase, Git/GitHub, Jest, Vitest

SELECTED ENGINEERING WORK

AuthVisage — *OAuth/PKCE browser SDK and face-authentication UI*

- Designed a typed SDK with PKCE S256, CSRF-state validation, token refresh, SSR-safe behaviour, auth-state listeners, CJS/ESM/type packaging, and Jest coverage; also built MediaPipe and Socket.IO capture/challenge flows.

FormForge — *deterministic document-template platform*

- Built ratio-based PDF/DOCX annotation and a shared measured render plan supporting wrap, shrink, ellipsis, clip, and error policies so browser previews and generated PDFs remain consistent.

Tile Layout Planner — *computational geometry and browser CAD tooling*

- Implemented polygon validation, winding normalization, offsets, clipping, centered tiling, cut/waste analysis, SVG/Canvas rendering, gestures, undo/redo, DXF/CSV export, and Vitest coverage.

Workflow Tree — *typed workflow authoring and deterministic graph routing*

- Built major routing and layout components around a canonical typed document model, port-aware orthogonal paths, cell constraints, transport validation, and behavioural tests in a collaborative repository.

Medical Assessment Workflow — *auditable patient, model, and clinician data*

- Built role-aware assessment, signed media, asynchronous task progress, clinician review, and append-only value history that preserves source provenance while computing effective values.

Handwriting Plotter — *custom typography and physical-device workflow*

- Built a glyph-capture-to-plotter pipeline with OpenType kerning, layout and wrapping, spreadsheet batches, paginated SVG generation, hardware queues, duration estimates, and cancellation.

Bunny Pedigree Platform — *recursive graphs and reviewable AI extraction*

- Built editable multi-generation pedigree graphs, domain models and RLS, recurring tasks, structured image-to-lineage extraction with human review, and branded PDF/SVG export.

Try-On AI Workflow — *replay-safe generative media orchestration*

- Built owner-scoped uploads, multi-stage task progress, model routing, parent/child dependencies, replay-safe downstream task creation, retry counters, compensation, and signed result delivery.

Seen Assessments — *spreadsheet analytics and high-volume document output*

- Normalized irregular Excel structures, calculated cohort and progress analytics, and moved batches of student-card PDF generation into a Web Worker to protect the browser main thread.

Unitas Media Intelligence — *AI-assisted research with deterministic scoring*

- Built partial-failure-tolerant multi-source ingestion, document extraction, LLM-based clustering and relevance, and auditable deterministic scoring for news monitoring and report workflows.

EDUCATION

Bachelor's in Informatics and Computer Engineering | Innopolis University, Russia | 2025

Thesis: Reliable Face Recognition as a Service: A Multi-Layered Approach to Spoofing Prevention and System Integrity

Grade: Excellent | Languages: Arabic (native), English (professional working proficiency)