Mohamed ElKhamisy

Full Stack Developer | AI Applications, Web & Blockchain

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Full Stack Developer with 4+ years of experience building web applications, AI-powered products and blockchain solutions. Experienced across frontend and backend development, AI agent systems, enterprise integrations and cloud infrastructure, with a strong focus on turning business requirements into practical, scalable applications. Comfortable working across the entire development lifecycle, from technical planning and architecture to implementation, deployment and ongoing improvements.

PROFESSIONAL EXPERIENCE

Innovation City (formerly RAK DAO)

Jun 2024 – Present

Full Stack Developer | Ras Al Khaimah, UAE

Work across full-stack engineering, AI applications, and blockchain products for a UAE free-zone authority, contributing to product development from requirements and technical implementation through release.

Enterprise AI Agent Platform | Departmental Automation

- Key technical contributor to an enterprise AI platform bringing together approximately 50 specialized agents across Marketing, Sales, Registry, Partnerships, Finance, Customer Experience and Leadership.
- **Marketing:** Contributed to a Marketing Department Head agent and its specialist agents covering the full marketing workflow. Built event discovery workflows that search and score opportunities against marketing criteria, track selected events for schedule and status changes, and alert the team when updates occur. Also contributed to personalized VIP invitation campaigns using Excel guest lists and branded templates, automated email distribution, PR and media monitoring, social media publishing, enquiry responses and AI-generated marketing assets.
- **Sales & CRM:** Contributed to social media agents that handle Social enquiries, qualify prospects and create leads in Salesforce. Also worked on a sales forecasting solution using historical Salesforce opportunities to estimate deal-closing likelihood and expected pipeline value over 30, 60 and 90 days.
- **Registry & Business Operations:** Worked on AI-assisted company-name pre-checks, business-activity matching, document verification, government NOC workflows, and partner onboarding. Also contributed to internal knowledge assistants and workflows connecting employees to company/business documents.
- **Engineering:** Contribute to Python/FastAPI services and agent orchestration using Strands Agents, RAG and MCP. Work with PostgreSQL/pgvector, Redis, Celery, OpenRouter, and AWS Bedrock, integrating Salesforce, Microsoft Graph, and Meta. Participate in security reviews covering role-based access, human approvals, PII protection, encryption, audit logging and data retention.

Website & Digital Experience

- Lead website development and roadmap planning with Marketing and Commercial, including migration from WordPress to **Next.js, TypeScript and Sanity CMS**. Develop reusable components, CMS integrations and customer journeys.
- Improved mobile Lighthouse Performance scores from **78 to 95 across 125 pages**, reducing median Total Blocking Time from **226 ms to 72 ms** through frontend optimizations in comparable staging/preview audits.
- Maintain chatbot integration, technical SEO/GEO, analytics and application monitoring using Sentry, GA4, Google Tag Manager, Search Console and Lighthouse.

Digital License | Blockchain Business Identity

- Developed a blockchain-backed digital licensing platform to replace physical licenses with a single, reusable and publicly verifiable business identity, enabling access to Innovation City's services across the ecosystem.
- Built the Next.js application, wallet integrations and upgradeable Solidity contracts supporting non-transferable credentials, expiry, revocation and role-based administration. Worked across Hedera HTS and Avalanche before the production launch on IOPn's OPN Chain, with a longer-term vision of extending the digital identity into a business engagement platform with activity-based points, achievements and rewards.

SmartR | Government & Partner Super App

- Lead the development and delivery of SmartR, a super app bringing Innovation City's services, Ras Al Khaimah government services and third-party partner offerings into one mobile experience using the **Tencent Super App Framework (TCSAS)**. Oversee the development of internal and external Tencent Mini App Programs, lead project planning and the mobile development team, guide UX/UI direction, and manage stakeholder relationships and technical collaborations with government entities and partners.

Visitor Experience & Tracking

- Led development of a visitor-tracking system featuring live floor dashboards, interactive maps, room occupancy, visitor check-ins, bookings and administrative interfaces. Also led the development of a reception kiosk with returning-visitor recognition, voice-assisted bookings and visitor management, including an assisted identity-matching workflow to help identify unrecognized visitors through potential matches and visitor/receptionist confirmation.

AI Applications & Technical Mentoring

- Led the development of multiple AI-powered customer applications, including the AI Launch Kit, which generates company websites, brochures and profile presentations from incorporation data; the Business Plan Builder, which helps customers prepare business plans aligned with the free zone's incorporation requirements; and AI-powered website and Telegram assistants for customer support.
- Managed and mentored 26 interns across two cohorts, guiding project scoping, task allocation, development, code reviews, testing and final demonstrations, helping teams turn initial ideas into working applications.

PotLock | Software Engineer

Dec 2023 – Jun 2024

Remote

- Built features for a public-goods funding platform on NEAR chain, covering quadratic funding rounds, project applications, donations, pool allocation, funding management, payout calculations, allocation logic, and related payout workflows.
- Developed across two generations of the platform, from the original NEAR BOS application to its Next.js rebuild, implementing donation flows, project discovery, funding dashboards, wallet connections and smart-contract integrations.
- Developed Nada.bot, a Sybil-resistance product supporting human verification and more trustworthy funding participation.

MPA | Software Engineer

Feb 2022 – Oct 2022

Remote

- Developed GenaDrop's no-code NFT creation and minting experience, supporting multiple blockchains, wallet connections, NFT collections, marketplace interfaces and Stripe payments. Integrated Firebase and decentralized storage through IPFS
- Built a webcam-based NFT minting workflow with single and dual-camera capture, GIF generation and integration with a Python image-processing service.
- Developed BluntDAO onboarding and community features, including QR scanning, wallet verification, camera capture, and community dashboards.
- Contributed to the MPA website and mentorship platform, building React interfaces and Node.js/Express APIs for member management, mentor matching, courses, events, and community authentication.

MPA | Software Engineer Intern

Nov 2021 – Jan 2022

Remote

- Joined the development team working on a mentorship platform connecting mentors and learners. Worked on React dashboards and Express/MongoDB APIs covering profiles, courses, events, and mentor matching.
- Worked within an Agile development environment, participating in sprint planning, daily updates, retrospectives, GitHub collaboration, and code reviews.

PROJECTS

Cent | Digital Wallet & Payments Platform

- Led full-stack delivery of **Next.js/TS dashboards and FastAPI/PostgreSQL services** for retail, corporate, and administrative accounts, from requirements and planning through implementation and handover.
- Integrated centrally managed wallet infrastructure with a **central treasury, user-specific deposit addresses, deposit notifications and balance tracking**; built deposits, withdrawals, user-to-user and corporate bulk transfers, and **CENT/USDT conversion** workflows.
- Implemented **fiat-to-USDT funding integrations**, staking/rewards, configurable fees, account permissions and transaction reporting, with **JWT/TOTP authentication** and custody-provider APIs.
- Developed and deployed upgradeable **BEP-20 Solidity contracts**; reviewed contract and transaction behaviour and prepared **Docker, AWS EC2 and RDS** deployment and operational handover.

CraftX | Tender Document Intelligence

- Developed AI-powered document processing pipelines using Python, LangGraph and Gemini (via OpenRouter) to extract construction quantities from PDF drawings, combining multimodal vision, document classification and LLM-based BOQ generation.
- Engineered DWG/CAD processing workflows using ODA File Converter, ezdxf and Python to convert technical drawings into structured geometry data, extract construction materials and generate BOQs, alongside intelligent SOR template parsing, BOQ-to-SOR mapping and pricing workflows using Docling and OpenPyXL.
- Built AI-powered document intelligence and RAG capabilities using LangChain, LangGraph and Qdrant, integrating vector search, PostgreSQL and LLM-powered retrieval to enable contextual querying across tender documents and structured business data.
- Developed the core backend using FastAPI, PostgreSQL, SQLAlchemy, Celery and Redis, supporting multi-tenant tender management, supplier onboarding, RFQs, quotation and bid management, project scheduling, analytics dashboards and granular access control through JWT authentication and RBAC.

Blockchain & Tokenization Projects | International Clients

KOZII, DEXC & BigSun: Developed websites and Solidity smart contracts for international clients in Singapore, Hong Kong and Dubai. Projects included KOZII's real-estate tokenization platform, DEXC's staking and crypto-card features, and BigSun's token contracts. Built Next.js/TypeScript interfaces, integrated wallets, and developed, reviewed and deployed BSC/BEP-20 contracts using Solidity, Hardhat and OpenZeppelin.

TECHNICAL SKILLS

Frontend & CMS: React, Next.js, TypeScript, JavaScript, Vite, HTML/CSS/SCSS, Tailwind CSS, shadcn/ui, Radix UI, Material UI, GSAP, Motion, WordPress, Sanity

Backend & data: Python, FastAPI, Pydantic, Node.js, Express, Fastify, REST/GraphQL, PostgreSQL, SQLAlchemy, Alembic, MongoDB, Redis, Celery, Supabase, Firebase

AI engineering: Agentic AI / Multi-Agent Systems, LangChain, LangGraph, RAG, tool calling, MCP, OpenRouter, Amazon Bedrock, Qdrant, Docling, Langfuse

Cloud & delivery: AWS (EC2, ECS Fargate, S3, RDS, ECR, IAM), Docker, Terraform, GitHub Actions, CI/CD, Vercel, Cloudflare

Integrations: Microsoft Graph API, Meta Graph API, Salesforce API middleware, MuleSoft/API gateway coordination, SSO, OAuth 2.0, JWT/TOTP, webhooks, n8n, Make, Zapier

Blockchain: Solidity, Hardhat, OpenZeppelin, ethers.js, viem, wagmi, RainbowKit, ERC-20/BEP-20, ERC-721, soulbound/expirable NFTs, UUPS/Transparent proxies, NEAR, Solana, Hedera HTS, IPFS

Tools & workflow: Git, Jira, Figma, Postman; technical SEO/GEO, GA4, GTM, Google Search Console, Sentry

EDUCATION

Bachelor of Engineering, Electronics and Communications
High Institute of Engineering and Technology, Egypt | Sep 2017 – Jul 2022