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Results-driven **Full Stack & AI Software Engineer** specializing in Cloud-Native Microservices, Generative AI LLM Integration (Multimodal Vision OCR, Prompt Engineering, Guardrails), and Enterprise-Grade System Architecture. ECPC/ICPC Competitive Programmer with proven algorithmic mastery in dynamic programming and graph theory. Certified by **IBM** (15-Course Professional Certificate), **Huawei Cloud**, **WE Telecom Egypt** (200-Hour Full-Stack Diploma), and **University of Colorado Boulder**. Architect of **9+ production systems** enforcing 100% strict TypeScript type safety, zero client API key exposure, and offline-first desktop/mobile apps.

AI & Multimodal Vision:	Google Gemini 3.6 / 2.5 Flash, Multimodal OCR Handwriting Analysis, Strict Zod JSON Schema Enforcement, RAG Architecture, LLM Prompt Engineering, Secure API Proxying.
Full-Stack & Mobile:	Next.js 16/15 (App Router), React 19/18, TypeScript (Strict Mode), TanStack Start (SSR), React Native (Expo), Electron 42 (Native Windows NSIS), Tailwind CSS v4, Framer Motion.
Cloud & Microservices:	Microservices Architecture, Docker, Kubernetes, OpenShift, Serverless Edge (Nitro Engine), Huawei Cloud Services, Cloudflare Workers, CI/CD GitHub Actions.
Data, Security & Core:	Firebase Firestore & Auth Rules, Cloudinary CDN, Real-time WebSockets/MQTT, 3-Strike Anti-Cheat Engine, Data Structures & Algorithms, Dynamic Programming (C++).

CV Genius Optimizer & BOSSLA Career Pro [Next.js 16](#) • [TypeScript](#) • [Framer Motion](#) • [Zod](#)

- **ATS Resume Auditor & Google X-Y-Z Rewriter:** Engineered a forensic resume auditor parsing PDF resumes client-side with zero server storage.
- **Strict JSON Schema Enforcement:** Implemented Gemini 2.5 Flash with Zod runtime validation to prevent LLM prompt injection and output glitches.
- **ATS Match Engine:** Computed context-aware keyword gap detection scores with real-time experience rewrite suggestions.

E-Written: BIS Smart Grader V2 — Assiut University [React 18](#) • [Multimodal Gemini 2.5 OCR](#) • [Firebase](#) • [Cloudinary](#)

- **Multimodal Handwriting OCR Pipeline:** Built an automated academic grading engine transcribing handwritten Arabic & English exam scripts.
- **University Faculty Security:** Enforced strict whitelisted domain auth (*.edu.eg) and Firestore Security Rules restricting ledger access to faculty.
- **Cloud Assets & Ledger:** Processed raw paper photos via Cloudinary image pipelines and exported verified scores to XLSX/PDF.

Clinic Hub (Clinic OS) — Bilingual Desktop OS [Electron 42](#) • [React 18](#) • [Firebase](#) • [Gemini 1.5 Flash](#) • [Tailwind CSS](#)

- **Offline-First Desktop App:** Developed a native Windows Electron desktop application with main & renderer IPC process isolation.
- **Dual RTL/LTR Mirror Engine:** Designed seamless Arabic & English UI direction switches with zero layout shifting.
- **AI Safety Prescription Assistant:** Integrated an AI prescribing engine performing real-time drug allergy & interaction checks.

AI Integrated Healthcare System — KSIU Graduation Project [React Native \(Expo\)](#) • [IoT Wearable Hardware](#) • [MQTT](#) • [Firebase](#)

- **IoT Telemetry Ecosystem:** Paired custom wearable hardware (BP, HR, SpO2, Temp) streaming vitals over MQTT protocol to mobile & web apps.
- **Emergency Threshold Dispatch:** Engineered real-time telemetry charts with automated SMS & voice alert triggers for critical vitals.

Bavly AI Launchpad & SmartEdu SaaS Platform [React 19](#) • [TanStack Start \(SSR\)](#) • [Nitro Engine](#) • [Express](#) • [Firebase](#)

- **Zero Key Exposure SSR Architecture:** Built an SSR platform utilizing Nitro Engine server-route proxies (/api/chat) protecting LLM secret keys.
- **3-Strike Anti-Cheat Engine:** Implemented client-side anti-cheat guardrails (fullscreen lock, tab blur tracking, copy prevention).

VERIFIED DIPLOMAS & CERTIFICATIONS

- **Huawei Cloud Service Computing Micro-Cert** — *Huawei Cloud (Valid 2026)*
- **IBM Full Stack Developer Certificate** (15 Courses) — *Coursera / IBM (2024)*
- **Data Mining Methods Certificate** — *University of Colorado Boulder (2024)*
- **Container & Kubernetes Essentials V2** — *IBM / Credly Verified Badge (2024)*
- **Full Stack Web Development Diploma (200 Hours)** — *WE Telecom Egypt (2024)*
- **IBM AI Developer Professional Certificate** (10 Courses) — *Coursera / IBM (2024)*
- **Cyber Security Excellence Certificate** — *Arab Organization for Industrialization (AOI)*
- **Generative AI Essentials for Developers** — *IBM / Credly Verified Badge (2024)*

COMPETITIVE PROGRAMMING & ACADEMIC EDUCATION

- **ECPC Finalist (Egyptian Collegiate Programming Contest):** Honorable Mention (2022 & 2023) — ICPC Foundation. Specialized in dynamic programming, graph algorithms, and runtime optimization.
- **Bachelor of Science in Computer Science & Software Engineering:** King Salman International University (KSIU). Graduation Project: AI Integrated IoT Healthcare Ecosystem.