

Hichem Toumi

Full-Stack Software Engineer | Applied AI | Go, TypeScript/React, Python | Embedded Systems

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SUMMARY

Software engineer with 8+ years of programming experience across web, mobile, AI and embedded systems. For the past 2 years at Algérie Poste, the national postal operator, has worked across software engineering and applied AI: contributed to its public website, which serves millions of users, built internal platforms end to end, from database schema to deployment, and developed machine learning models for parcel volume forecasting and video anomaly detection. Holds a Master's in Embedded Systems, with an accepted conference paper on a digital twin for parcel-sorting hardware. Also co-founder of an indie game studio and volunteer lead engineer for an open-source nonprofit.

TECHNICAL SKILLS

Languages	Go, TypeScript, Python, C++, C#, Dart, SQL
Frontend	React, Next.js, Vite, Tailwind CSS, Apollo Client, i18n (FR/EN/AR, RTL), PWA, Capacitor, Flutter
Backend	Gin, Django, Strawberry GraphQL, Django Channels, DRF, Node.js, Strapi, Payload CMS, OpenAPI, gRPC, NATS, Protobuf
AI & ML	PyTorch, scikit-learn, OpenCLIP, OpenCV, pandas, ONNX Runtime, time-series forecasting (NAR, SARIMAX, Prophet), video anomaly detection
Data	PostgreSQL, Redis, SQLite, Celery
DevOps & Cloud	Docker, nginx, Caddy, PM2, Coolify, Hetzner, Cloudflare, AWS (S3, SQS, CloudFront), Prometheus, Grafana, Loki
Embedded	C++, CMake, MuJoCo, robot kinematics, path planning, Unity

EXPERIENCE

Software Engineer (Full-Stack and AI) Oct 2024 – Present
Algérie Poste · Direction de la Compétence et de l'Innovation · Algiers, Algeria

Public corporate website

- Part of a team of 3 that built the company's public website, serving millions of users in French, English and Arabic.
- Owned the backend server, the web server and container setup, and the CMS integration.
- Handled urgent requests on very short deadlines, coordinating with multiple departments to publish changes quickly.
- Led the security hardening of the website for a security audit.

Project portfolio management platform

- Project lead for the digitization of the department's project management process, replacing manual tracking with a web platform.
- It takes projects from idea to delivery: backlogs, Kanban, sprints, Gantt, requirements, ISO procedures, budgets and generated Word/PDF documents.
- Added real-time collaboration and role-based access control.

Quality-label audit platform

- Designed and built a platform for auditing and certifying a network of about 4,400 post offices across 60 regional units.
- Built a custom CMS so administrators can update content without code changes.
- Built a transactional scoring engine that weights the questionnaire tree, drafts non-conformities and awards labels.

Video anomaly detection for security cameras

- Benchmarked four weakly supervised models (VideoMAE, Sultani MIL, RTFM, VadCLIP) on in-house surveillance footage, using 5-fold cross-validation and deployment KPIs: incidents caught within a false-alarm-per-hour budget and time to detect.
- Ported VadCLIP (AAAI 2024) on a frozen CLIP ViT-B/16 backbone, reproducing the paper's 88.02% frame AUC on UCF-Crime and reaching 0.91 video AUC on our footage through transfer learning alone.
- Built a web app to upload videos, review anomaly scores and compare models, with GPU inference in a worker process.

Parcel import forecasting and tracking analytics

- Led a team of interns in building a NAR neural network that forecasts daily international parcel imports from 3+ years of tracking data, selected against ARIMA, SARIMAX and Prophet baselines.
- Built the dashboard around it: delivery KPIs by region and post office, a map view and 8 automated delay alerts across the import chain.

Engineering Intern

Jan 2024 – Jun 2024

Algérie Poste · Algiers, Algeria

- Designed an omnidirectional conveyor system for e-logistics parcel sorting, built from tileable omniwheel cells (Master's thesis). Later rebuilt it as a full digital twin, which became a peer-reviewed conference paper.

Co-Founder and Game Developer

Nov 2025 – Present

ItnoG · Indie game studio startup, team of 4 · itnogames.com

- Primary maintainer of the repository for **Seven Heavens**, a 2D Metroidvania in Unity and C#.
- Work mainly on gameplay scripting, game feel, combat, player movement, camera, UI/UX and progression systems.
- Built and deployed the studio website (Astro, Payload CMS), so the team can publish updates on its own.

Lead Engineer (Volunteer, Founding Member)

Oct 2025 – Present

WikiSubmission · Remote · wikisubmission.org · github.com/WikiSubmission

- **Website:** lead developer of wikisubmission.org, a Next.js and React platform for reading and searching scripture, with email sign-in, bookmarks, notes, shareable collections, reading stats, a searchable media archive with transcripts, multilingual content and an editorial CMS with role-based permissions.
- **Android app:** built the app with Capacitor and published it on Google Play. It works offline, sends push notifications, plays audio in the background and keeps user data such as bookmarks and notes in sync with the website.
- **Architecture:** a microservices architecture serving cross-platform projects (web and mobile), with data kept in sync between them. The website and app share one monorepo, so they reuse the same components, hooks and content. Services include an API I built and a Go search service for the S3 media archive (PostgreSQL trigram search synced by an SQS worker, CloudFront signed URLs).
- **Infrastructure:** self-hosted every service on Hetzner, deployed as Docker containers with Coolify behind Cloudflare (Tunnel, WAF, DNS as code), with Prometheus, Loki and Grafana monitoring and nightly encrypted backups to S3. Everything is open source on the WikiSubmission GitHub organization.
- **Discord bots** (TypeScript, discord.js): 24/7 audio streaming in voice channels, AI thread summaries with an LLM (Llama via Groq), moderation tools (member verification, jail, message logging with auto-deletion, role menus) and scripture lookup and search in over 10 languages.

PROJECTS

Digital Twin for an Omnidirectional Conveyor Go, C++, Flutter, MuJoCo, gRPC, NATS

- Three processes (Flutter UI, Go control layer, 1 kHz C++ physics server) share one Protobuf contract, so real hardware can replace the simulator without code changes.
- Per-cell inverse kinematics, A* planning with spline smoothing and jerk-limited motion, and deadlock-free routing for multiple packages at once.

Lumen: Cross-Platform Ebook Reader React, TypeScript, Capacitor, ONNX Runtime github.com/toumi-hichem/lumen

- One codebase ships as an offline PWA plus Android and iOS apps, reading EPUB, MOBI and PDF, with on-device neural text-to-speech (WebGPU with WASM fallback) and sentence highlighting.

PUBLICATIONS

H. Toumi, H. Lasmi, M. Ferroukhi. "Digital Twin-Based Validation and Deployment Feasibility of a Tileable Holonomic Conveyor Architecture for National Postal Logistics." *International Conference on Electrical Engineering and Advanced Technologies (ICEEAT'26)*, University of Batna 2, May 2026. Accepted, pending publication in IEEE Xplore.

EDUCATION

Université des Sciences et de la Technologie Houari Boumediène (USTHB) · Algiers, Algeria

Master's in Embedded Systems · Thesis: omnidirectional conveyor system for e-logistics

2024

Bachelor of Science in Electronics

2022

CERTIFICATIONS

Agile, CETIC May 2026
Power BI, CETIC

LANGUAGES

English (fluent) · Arabic (fluent) · French (intermediate)