

Mohamed Ilyes Tounsi

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Carlsbad, CA, USA

PROFESSIONAL SUMMARY:

Engineering leader with 20+ years of experience building scalable, high-performance web applications and leading cross-functional, distributed teams. Deep expertise in full-stack development, cloud infrastructure, data pipelines, and AI/ML integrations. Proven track record of driving delivery excellence, mentoring engineers, and architecting enterprise-grade SaaS platforms.

TECHNICAL SKILLS:

- **Languages & Frameworks:** PHP, JavaScript, Python, HTML5, CSS3
- **Languages & Frameworks:** Node.js, React, TypeScript, Python, PHP, FastAPI, GraphQL, REST APIs
- **Frontend:** React, Next.js, Vite, Tailwind CSS, Responsive UI Design
- **Backend & Cloud:** Node.js, Python, FastAPI, Docker, Kubernetes, AWS (ECS, EC2, S3, CloudFront, Route 53, Secrets Manager), CI/CD (GitHub Actions)
- **Databases & Data:** PostgreSQL, MongoDB, ChromaDB, SQL, ETL pipelines, vector embeddings, data modeling
- **AI/ML & Analytics:** HuggingFace embeddings, OpenAI API, semantic search, BI tools, ML pipelines
- **Testing & Tools:** TDD, Jest, PHPUnit, unit/integration/E2E tests
- **Project Management:** Agile/Scrum, Jira, ClickUp, Asana, remote team leadership

EXPERIENCE:

VP of Engineering – [AIMIA](#) (Remote) | San Diego, CA | 2025 – Present

- Lead and scale distributed software, platform, QA, and data teams, driving strategic initiatives and cross-team alignment.
- Architect and oversee AI-powered career advisory platform, integrating backend (FastAPI, Node.js) and frontend (React, Next.js) solutions.
- Establish CI/CD pipelines, deploy services on AWS, and maintain production reliability and security.
- Mentor engineers, foster collaboration, and instill disciplined execution across Agile teams.
- Tech Stack: Node.js, Python, FastAPI, Express, Next.js, Tailwind CSS, MongoDB, GitHub Actions, AWS (ECS, EC2, Route 53), Docker

Senior Software Engineer – [Persperity Health](#) (Remote) | AI-Powered Scientific Research Platform | 2025 – Present

- Designed and maintained full software stack for an AI-driven biomedical research platform, supporting automated ingestion, semantic search, and analysis of scientific literature.

- Developed backend APIs (FastAPI + Python), integrated PubMed, bioRxiv, ClinicalTrials.gov; implemented secure authentication/authorization with Keycloak.
- Built responsive frontend (React, TypeScript, Tailwind CSS) with role-based access and session management.
- Managed databases (MongoDB, ChromaDB) for scalable vector embeddings and document storage.
- Deployed and maintained cloud services on AWS, automated CI/CD pipelines, and ensured monitoring with Prometheus/Grafana.

Senior Software Engineer – [NXT Robotics](#) (Remote) | 2025 – Present

- Improved frontend, backend, and APIs to support robot control, monitoring, diagnostics, and command dashboards.
- Integrated AI and machine learning solutions to enhance robotic decision-making capabilities.
- Collaborated on full-stack development, ensuring scalable, maintainable, and reliable systems.
- Tech Stack: Laravel, PHP, React.js, AWS, Docker, CI/CD, REST APIs

Software Engineering Manager – [Zembra](#) (Remote) | San Diego, CA | 2024

- Led and scaled a fullstack engineering team of 6, delivering core platform features in Agile environment.
- Architected web applications and REST APIs using Node.js, React, PHP, and SQL.
- Acted as Scrum Master, facilitating sprints and promoting cross-team collaboration.

GIS Enterprise Architect – [geoConvergence](#) (Remote) | Bloomington, IN | 2023 – 2024

- Architected high-availability GIS solutions and microservices on AWS using Lambda, CloudFormation, and EventBridge.
- Ensured reliability, scalability, and secure deployment of data pipelines and GIS applications.
- **Tech Stack:** AWS, PostgreSQL, Esri ArcGIS, Docker, CloudFormation, EventBridge

Colonel & Intelligence Fusion Center Manager – Tunisian Armed Forces | 2001 – 2022

- Led software engineering efforts as a senior manager, overseeing architecture, delivery, and team performance for mission-critical systems.
- Built scalable PHP-based solutions, improving efficiency for eCommerce and marketing platforms.
- **Tech Stack:** PHP, MySQL, Node.js, Leaflet.js, REST API, Docker, GitHub

Senior Software Engineer - Freelance Developer 2010 – Present

- Delivered tailored eCommerce solutions, including robust frontend and backend systems.
- Integrated Laravel into existing infrastructures, modernizing workflows.
- Built reusable components and libraries for accelerated project delivery.
- **Tech Stack:** PHP, Node.js, React, Python, AI, MongoDB, MySQL, AWS, Docker, GitHub

SELECTED PROJECTS

AI-Powered Career Counselor Platform — AIMIA

- Developed fullstack AI career advisory features, integrating backend, frontend, and AWS infrastructure for production deployment.

Intelligence Data Lake

- Consolidated disparate data into a real-time analytics dashboard with interactive visualizations for decision-makers.

EDUCATION

- **M.S. in Systems Technology**, [U.S. Naval Postgraduate School](#), 2012
- **M. of Engineering in Remote Sensing & GIS**, [Université de Pierre & Marie Curie](#), 2002
- **B. of Engineering in Telecommunication**, [Aviation School of Borj El Amri](#), 2001

TRAINING

- Critical Thinking, [NATO School](#), 2018
- Strategic Intelligence Leadership Course, [U.S. Defense Intelligence Agency](#), 2018
- Geographic Information Systems, [U.S. Federal Bureau of Investigations](#), 2017
- Intelligence Surveillance Reconnaissance, [Torchlight, U.K.](#), 2017
- Big Data Analysis, Data Science, Machine Learning, Internet of Things, [EuraNova Experts](#), 2016
- Geo Database Management & Maintenance, [U.S. Natl. Geospatial Intelligence Agency](#), 2016

LANGUAGES

- English (Fluent), French (Fluent), Arabic (Native)