

Hossam Sherif

Senior Software Developer

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Senior software developer whose work spans backend and distributed systems, Linux network operating systems, infrastructure automation and applied AI. Currently lead architect for the management plane of Orange Egypt's SONiC network operating system and for its GenAI network assistant.

EXPERIENCE

Senior Software Developer, Orange Egypt

August 2021 to present

Software Developer from August 2021, promoted January 2025

- Lead architect for the management plane of Orange's SONiC based network operating system. The team owned the engineer facing configuration surfaces: RESTCONF, NETCONF, CLI and gNMI. The estate reached more than 1,200 switches over two years as a team outcome.
- Core maintainer of the public SONiC NETCONF management server, written in Go, covering implementation, architecture design, code review and releases.
- Co-owned and co-built Flare with one peer engineer, a Go CDN deployment orchestrator that reduced rollout time by 85% and is the main deployment method for many Orange points of presence.
- Lead architect of a GenAI assistant that lets engineers monitor and configure SONiC devices in natural language, leading a three developer team hands on. Currently in testing. Components are patent pending in France with Hossam as a named inventor.
- Co-owned a cost optimized, self healing AWS model training pipeline that detects drift and retrains automatically, reducing training cost by 70% and hyperparameter tuning time by 50%.
- Lead architect for the production multi-vendor validation ecosystem, applying uniform certification standards across more than 30 test network topologies.
- Co-owned production Python and FastAPI services on GCP GKE running at 99.95% uptime with automated CI/CD, tracing and canary releases, integrated with several customer APIs.
- Built RAG systems with advanced chunking and hybrid search over FAISS, Pinecone, pgvector and a custom vector database, plus citation tracing and answer audit mechanisms.
- Technical and project lead for five engineers since January 2025, allocating work, coaching and supplying documented performance input, while remaining a hands on contributor.
- Built the observability stack for distributed network nodes with Prometheus, Grafana, Loki and Alertmanager. Implemented TACACS+ authentication, remediated high impact CVEs and automated zero downtime over the air image updates for SONiC devices.

Mandatory military service, Egyptian military

January 2020 to May 2021

- Completed mandatory military service while contributing to secure communications and resilient networking technical projects.

Embedded Systems Engineer, SSTM

September 2018 to January 2020

- Primary backend and frontend contributor in a four person team building a high performance GPRS data logger for harsh environments with more than 15 sensors.
- Built the AWS telemetry backend ingesting data from more than 10,000 devices, with zero downtime deployments, observability and CI/CD, in PHP and Laravel.
- Delivered a real time monitoring and analytics frontend in Vue.js with authentication, rate limiting and alerting.
- Supporting contributions to firmware, PCB design and cellular communications alongside the rest of the team.

EDUCATION

Bachelor of Engineering, Electronics Engineering

September 2013 to September 2018

German University in Cairo

- Graduation project: a double humped chaotic system based image encryption system implemented on FPGA.

PUBLICATIONS

- CLA based Floating-point adder suitable for chaotic generators on FPGA. 30th International Conference on Microelectronics, 2018. <https://doi.org/10.1109/ICM.2018.8704074>
- Floating-Point Double-Humped Chaotic Image Encryption on FPGA. 2nd Novel Intelligent and Leading Emerging Sciences Conference, 2020. <https://doi.org/10.1109/NILES50944.2020.9257877>
- First author on both, published as Hossam S. Hassan.

OPEN SOURCE

- Core maintainer, SONiC NETCONF management server, Go. github.com/sonic-net/sonic-netconf-server
- NOVA, a cross platform Electron application built on the bachelor graduation project image encryption research. github.com/hussamsh/Nova
- Open source C++ implementation of the same image encryption algorithm. github.com/hussamsh/nova-cpp

AWARDS

- Orange Cup 2024, Orange's global innovation award, Paris. Individual winner for the GenAI network automation agent.
- MAL startup competition, Cairo 2018, first place with the Hasala team.
- Betapitch Berlin 2017 with the Hasala team.

SKILLS

- **Core.** Python, FastAPI, Go, Linux, SONiC, network automation, RESTCONF, NETCONF, gNMI, CLI tooling, Docker, AWS, CI/CD, observability, backend architecture, RAG, LLM agents, Svelte, SQL, Redis, TensorFlow, scikit-learn
- **Familiar.** Kubernetes and GKE, MLOps, TypeScript, Vue.js, Kafka, PostgreSQL, Terraform
- **Languages.** Arabic native, English fluent