Tasneem Eltabakh

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Giza, Egypt | Relocating to London, UK in Sep 2026 | UK Student Visa | Part-time work in term, full-time in vacations

Backend and site-reliability (SRE) engineer who builds and operates production systems end to end, from ASP.NET Core backends to an adaptive load-management platform with anomaly-aware routing, predictive autoscaling, and full observability, with an IEEE publication and a fully-funded Women-in-STEM scholarship.

EDUCATION

London South Bank University (LSBU) *Sep 2026 – Sep 2027*
M.Sc. in Advanced Electrical & Electronic Engineering *London, United Kingdom*

University of Science and Technology at Zewail City (ABET Accredited) *Sep 2021 – Jun 2026*
*B.Sc. in Communications & Information Engineering, Major in Data Science and AI — **Cum Laude*** *Giza, Egypt*
Minor in Computer Science, Software Applications Development *cGPA 3.51, Minor GPA 3.95*

PUBLICATIONS

Quality of AI-Generated vs. Human-Generated Code [IEEE Xplore] ↗ *July 2024 – Dec 2024*

- **T. M. Eltabakh**, N. N. Soudi, and D. Shawky, "Quality of AI-Generated vs. Human-Generated Code," *2024 34th International Conference on Computer Theory and Applications (ICCTA)*, Alexandria, Egypt, 2024, pp. 200–205. DOI: 10.1109/ICCTA64612.2024.10974782.

PROFESSIONAL EXPERIENCE

Smart Home Platform & Automation Engineer | Smartly *Feb 2026 – Present*
Remote – London, UK / Riyadh, Saudi Arabia

- Designed Smartly's end-to-end smart-home delivery model on Home Assistant, a layered, local-first architecture that keeps each villa fully functional even when the internet is down.
- Turn each villa's architectural drawings into a complete implementation plan covering room-by-room controls, automation logic, device selection, and the local-hub deployment setup.
- Standardized delivery across villas with reusable configuration templates, naming conventions, and pre-approved device packages, so every new home is built quickly and consistently.
- Design the dashboards and voice control the homeowner uses day to day, and decide how each device connects over Zigbee, Wi-Fi, or Bluetooth.

Backend .NET Developer | Team Way *Jul 2024 – Jan 2026*
Remote – Riyadh, Saudi Arabia

- Sole backend engineer for Team Plus, a platform that unifies phone calls, WhatsApp Business messaging, and customer management in one dashboard for small and medium businesses.
- Built the entire ASP.NET Core backend: call handling and transfer, WhatsApp Business messaging with reply templates, a CRM with customer profiles and a sales-opportunity pipeline, and reporting with PDF and Excel export.
- Designed the full database schema in Entity Framework Core and exposed clean REST APIs, secured with JWT authentication and role-based access for agents and managers.
- Containerized the backend with Docker, set up CI/CD pipelines, and worked directly with the frontend team to integrate every feature.

Full Stack Web Developer | Smartly *Feb 2023 – Sep 2023*
Remote – London, UK / Riyadh, Saudi Arabia

- Developed an ASP.NET Razor Pages e-commerce web app with Bootstrap, designing user flows and layouts based on Figma prototypes.
- Built core features including product listings, shopping cart, offers/discount logic, and order flow, with data access using ADO.NET.
- Collaborated with the founder on feature planning and iterative improvements to enhance usability and performance.

GRADUATION PROJECT

SmartLoad: Adaptive Load-Management Middleware [GitHub] ↗ Sep 2025 – Jun 2026 | **Grade: A**
Python, NGINX, Redis, TimescaleDB, Docker, Kubernetes, OpenTelemetry, Prometheus, Grafana, scikit-learn, Stable-Baselines3, Flask, React

- Built a middleware that sits in front of an NGINX server pool and combines traffic routing, demand forecasting, anomaly detection, and autoscaling into one control loop, coordinated over a Redis message bus, with a classical load-balancer fallback that keeps every automated decision safe.
- Detected failing and slow servers that a standard load balancer cannot see and rerouted traffic around them, cutting errors and tail latency by up to 250 times at the same capacity during failures.
- Added a scikit-learn demand forecaster that grows the server pool ahead of traffic peaks and shrinks it as load falls, keeping capacity in step with demand instead of reacting after the spike.
- Delivered the full stack end to end: an OpenTelemetry pipeline feeding TimescaleDB, Prometheus and Grafana dashboards, a Flask and React operator console with manual overrides, a documented API with a Python SDK, and an automated test suite, all on Docker and Kubernetes.

AWARDS & HACKATHONS

British Council Women in STEM Scholarship September 2026
Fully Funded M.Sc. Scholarship | London South Bank University

- Awarded a competitive, fully funded scholarship covering full tuition and an annual £20,780 stipend for an M.Sc. at London South Bank University, granted to high-achieving women in STEM.

Solship Energy AI Hackathon 2026 | 3rd Place May 2026
Load Forecasting & Battery Dispatch Optimization | Python, LightGBM, PuLP, HiGHS, Linear Programming, Pandas, scikit-learn

- Forecast a home's electricity demand with a LightGBM model trained on a single year of data, keeping it accurate on both a later year and a brand-new house it had never seen, with no retraining.
- Built a battery controller, formulated as a linear program in PuLP and HiGHS, that plans a full day ahead, deciding when to store solar energy, charge from the grid, or sell power back to keep the electricity bill as low as possible within the battery and grid limits.
- Turned a two-month electricity bill into a net credit, beating both the no-battery case and the home's existing controller, and landing within about a euro of a perfect-hindsight ideal.

SELECTED PROJECTS

Web Development Feb 2026 – Jun 2026
ClipSphere Short-Video Platform | Next.js, Node.js, Express, MongoDB, MinIO, Docker

- Built a full-stack short-video platform in Next.js and Node.js with upload, discovery feeds, reviews, profiles, and admin moderation.
- Built secure REST APIs in Express with JWT login, role-based access (RBAC), and Zod request validation in a clean layered architecture.
- Integrated MinIO object storage with presigned media links, Swagger API docs, Postman/Newman tests, and email notifications, all running in Docker.

Big Data Analytics Sep 2025 – Jan 2026
Spotify Million Playlist Analytics Platform | Apache Spark, Databricks, AWS S3, Delta Lake, Streamlit

- Built an end-to-end pipeline that processes 1M playlists and 2.2M+ tracks from AWS S3 using Apache Spark on Databricks.
- Organized the data in Delta Lake with layered Bronze, Silver, and Gold stages and a star schema for fast, reliable analytics.
- Built Streamlit dashboards and a "what to play next" recommender based on how often songs appear together in playlists.

Software Architecture and Design May 2025 – Jun 2025
Scalable Microservices Video Platform | Go, Kafka, Redis, Docker, Kubernetes, OpenSearch

- Built a video-streaming platform in Go as separate microservices for login, content processing, streaming, and search.
- Secured communication between services with OAuth2, an API gateway, and rate limiting.
- Connected services through Kafka so they react to events instead of waiting on each other.
- Added Redis caching, OpenSearch logging, Grafana dashboards, and resilience patterns like circuit breakers, all running on Docker and Kubernetes.

AI Applications in Telecommunications May 2025 – Jun 2025
Spatio-Temporal Traffic Forecasting | Python, Keras, ConvLSTM, 3D-CNN, Prophet, XGBoost

- Reproduced a published deep-learning model, built with ConvLSTM and 3D-CNN networks in Keras, that forecasts mobile-network traffic across a city grid, and trained it for long-range prediction.
- Compared it against classical methods like Prophet and XGBoost to see which predicted telecom demand best.

TEACHING EXPERIENCE

Junior Teaching Assistant | Zewail City *Jun 2022 – Jan 2023*
Giza, Egypt

- Assisted students in Programming Fundamentals, Object-Oriented Programming (OOP), and Calculus, supporting lab sessions and project-based work in C++ and Python.

Programming Tutor | Intro to Coding & Web Development *May 2023 – Aug 2025*
Coach Academy, Remote

- Taught kids aged 8–12 foundational programming with Scratch and Code.org, then guided them in building small web apps with HTML, CSS, and JavaScript.

Lego & Robotics Instructor | Goethe Institute, Cairo *Dec 2022 – Jan 2023*

- Ran a hands-on robotics workshop in the Goethe-Institut's Maker Tuesday program, teaching children to build and program LEGO WeDo robots with motors and sensors.
- Introduced core programming logic, including sequences, loops, and sensor-triggered actions, through buildable robots with real-time debugging.

VOLUNTEERING & EXTRACURRICULARS

Head of Communications Engineering Sub-Team Feb 2024 – Present
ZC Racing Team (EVER Competition) | Zewail City, Egypt

- Led the design of communication systems for an electric race car, transmitting real-time sensor data (battery, GPS, speed) reliably under electrical noise.
- Collaborated with mechanical and powertrain teams to embed communication hardware in the chassis and troubleshoot integration.

"Quartz" Novel Writer ↗ Sep 2021 – Present
Cairo International Book Fair | Cairo, Egypt

- Authored and published the Arabic novel *Quartz* at the Cairo International Book Fair, and featured in a televised interview discussing the novel and creative process.

German Workshop Instructor Sep 2015 – Sep 2024
Yalla Deutsch | Cairo, Egypt

- Taught German to school students for nine years through singing, stage plays, and interactive workshops, all conducted in German.

LANGUAGE PROFICIENCY

English: IELTS Academic 7.0 (CEFR C1) | **Arabic:** Native | **German:** Intermediate