Mahmoud El-Kishky | Senior Software Engineer in Test / Embedded Systems Engineer

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US Citizen | Open to Relocation within the United States

Education

University of Texas at Tyler
BS in Computer Science, Mathematics Minor *2016–2019*
GPA: 3.63

Tyler Junior College
AS in Mathematics *2015–2016*
GPA: 3.80

GRE: Quantitative: 170 Verbal: 164

Current Focus & Independent Projects (2023–Present)

- Continuing work as an independent technical consultant (Linux systems, networking, automation, homelab deployments).
- Strengthening systems-level engineering skills through study in embedded systems (C, RTOS, microcontrollers) and Linux internals.
- Developing containerized services and automation utilities using Python, C/C++, Bash, and Docker.
- Maintaining a Proxmox-based virtual lab: LXC containers, rootless Docker, secure networking, Cloudflare tunnels.
- Expanding DevOps exposure (CI/CD concepts, TLS/Certbot automation, secure access patterns).
- Practicing algorithms, debugging workflows, low-level system design, and modern testing strategies.

Work Experience

Freelance
Independent Technical Consultant *2023–Present*
- Supported individuals and small teams with Linux server setup, diagnostics, virtualization, and homelab architecture.
- Configured Cloudflare tunnels, DNS routing, Nginx, and TLS/Certbot for secure remote service access.
- Developed automation scripts in Python, Bash, and C/C++ to streamline provisioning, testing, and system monitoring.
- Assisted in debugging Docker environments (privileged and rootless), optimizing resource usage and reliability.
- Provided guidance on adopting modern tooling, workflows, and DevOps best practices.

Trend Micro
Senior Software Engineer in Test *2022–2023*
- Automated testing for enterprise security devices using Python and distributed Linux systems.
- Debugged and maintained multiple test framework components, including legacy infrastructure.
- Worked with Docker, Linux networking, and cloud-connected security appliances.
- Supported QA pipelines and improved reliability of integration testing.

CACI / NASA Johnson Space Center
Spacecraft Flight Software & Simulation Engineer *2019–2022*
- Developed Class A flight software for NASA's Lunar Gateway Vehicle Systems Manager (VSM) using C/C++ and the Core Flight System (cFS).
- Built Python and Perl scripts for automated testing, verification, and simulation workflows.
- Created software specifications, architecture designs, and detailed documentation for mission-critical components.
- Collaborated with data services, simulation, and cross-contractor integration teams.
- Supported on-site engineering activities at Johnson Space Center.

University of Texas at Tyler
Software Engineering Intern *2017–2018*

- Designed a Python-based earthquake risk assessment program for Civil Engineering research.
- Reverse engineered API structures and implemented automated data ingestion.
- Built a user-friendly interface and performed real-time computational analysis.

Skills

Languages: Python, Java, C, C++, SQL, Bash, Perl

Tools: Linux (GUI & headless), Docker, Git, Proxmox, Cloudflare Tunnels, Nginx, TLS/Certbot

Concepts: Embedded Systems, RTOS Fundamentals, Automation Testing, Distributed Systems

Languages: Native English, Intermediate Arabic

Research

Earthquake Sliding Risk & Theoretical Analysis of Sorting — University of Texas at Tyler, Advisor: Dr. Gokhan Saygili

Cryptography Research (Elliptic Curve Groups) — NSF REU Grant DMS-1501404, Advisors: Dr. Daniel Hernandez & Dr. Emily Witt

Publications

1. Saygili, G., Rathje, E., **El-Kishky, M.** (2017) *Cloud-Based Tools for the Probabilistic Assessment of the Seismic Performance of Slopes*. GEESD 2018.

2. Saygili, G., Rathje, E., **El-Kishky, M.** (2017) *Probabilistic Seismic Hazard Analysis for the Sliding Displacement of Rigid Sliding Masses*. DesignSafe-CI Dataset, GEESD 2018.

References

Available upon request.