

# Mohamed Alaa Abdelhamed

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## PROFESSIONAL SUMMARY

Results-driven Computer Engineering student with a strong foundation in networking, automation, and intelligent transportation solutions. Experienced in railway systems, cybersecurity, and machine learning. Adept at programming, hardware integration, and problem-solving, eager to apply technical expertise to real-world challenges.

## EDUCATION

### Nile University

Sept 2021 – June 2026

*Bachelor of Engineering (B.E.) in Electrical & Computer Engineering*

GPA: 3.7

- Honors: Dean's Honors List (Nov 2023)

## WORK EXPERIENCE

### Railway Engineering Intern

Aug 2024 – Sep 2024

*Alstom Mobility*

- Acquired hands-on experience with Automatic Train Control (ATC) and Automatic Train Supervision (ATS) for railway automation.
- Assisted in train maintenance, diagnostics, and mechanical repairs.

### Network Administration & Cybersecurity Trainee

Jul 2024 – Aug 2024

*Ministry of Information and Communication Technology*

- Gained knowledge in network security, data center management, and cybersecurity best practices.
- Worked on network troubleshooting and security protocols.

### Undergraduate Teaching Assistant

Nov 2022 – May 2024

*Nile University*

- Programming: Assisted students in C++ and Python problem-solving.
- Electric Circuits: Guided students in building and analyzing electrical circuits.
- Engineering Drawing: Delivered instructional content on engineering design principles.

### MATLAB Instructor

Mar 2023 – Jun 2023

*Nile University*

- Designed and delivered introductory MATLAB workshops.

## PROJECTS

### Lightweight hybrid model for medical imaging : Scalable tumor segmentation model

May 2025 – Present

- building a Lightweight hybrid model for cancer segmentation

### Federated Deep Learning for Intrusion Detection

Jul 2025 – Aug 2025

- Designed and built a Federated Deep Learning achieving 98% accuracy in identifying network node failures.

### Modified MIPS single cycle architecture with DSP unit

Feb 2025 – May 2025

- Designed MIPS single cycle architecture with DSP unit to perform heavy digital signal processing more efficiently.

### Electric Car for EVER Competition

Feb 2024 – Aug 2024

- Contributed to manufacturing and control system design.

## TECHNICAL SKILLS

**Programming Languages:** Python, C++, C, Java, MATLAB

**Networking:** Network design, security, administration

**Hardware & Embedded Systems:** Arduino, ESP32, PCB Design

**Software Tools:** MATLAB, LTspice, Cadence, Vivado, Tensorflow, pytorch, scikit-learn, Microsoft Office

**Soft Skills:** Project Management, Teamwork, Communication, Problem-Solving

## CERTIFICATIONS

Cisco Certified Network Associate (CCNA) – Cisco Networking Academy

Linux Essentials – Cisco Networking Academy