

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