

Mostafa Ashraf Mohamed

Personal Info

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Military Service: Completed

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[LinkedIn](#) | [Portfolio](#) | [GitHub](#)

Education

Master of Science (M.Sc.) in Electrical Engineering (Computer & Systems Engineering) Ain Shams University (ASU), Faculty of Engineering | 2024 – 2026

Bachelor of Engineering (B.Sc.) in Electrical Engineering (Computer & Systems Engineering)

Ain Shams University (ASU) | **Graduated: 2021**

Graduation Project: Brain-Controlled Smart Wheelchair - [BrainWheel](#) — **Grade:** Excellent

- EEG-based control using machine learning for movement prediction.
- Autonomous navigation mode with safety constraints.
- **Ranked Top 5** in Dell's Envision the Future competition, **sponsored** by Valeo and iHub.

Work Experience

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| National Telecommunication Institute (NTI) | Instructor, Cairo, Egypt | Jun 2025 - Present |
| | <ul style="list-style-type: none">- Teach core software development fundamentals for multiple technical tracks.- Delivered specialized training in Applied Data Science, DevOps, and Cloud.- Prepared candidates for AWS certifications, including:<ul style="list-style-type: none">- AWS Cloud Practitioner, AWS Developer, AWS Solutions Architect- Designed course materials, hands-on labs, and real-world use cases. | |
| Orange Innovation | Software Engineer , (C++ - Qt - Cloud - CI/CD - 5G ORAN), | Apr 2022 - Present |
| | <ul style="list-style-type: none">- Designed and implemented a custom communication protocol over LoRa mesh networks, following OSI layered architecture.- Developed Qt-based desktop applications for protocol control, visualization, and monitoring.- Contributed to ns-O-RAN / FlexRIC open-source projects:<ul style="list-style-type: none">- Implemented E2AP v1.01 and KPM-RC v3 support.- Developed KPI-based handover decision logic.- Implemented an Energy Saving xApp for 5G RAN optimization.- Integrated RIC-TaaP with FlexRIC by OpenAirInterface (OAI) for LTE/5G simulation and testing.- Presented Energy Saving xApp at OAI 10th Anniversary Workshop (France)- Currently developing a Charging Function (CHF) for traffic calculation and quota management in OAI Core, Docker, IaC, CI/CD.- Conducted code reviews, refactored legacy components, and mentored interns. | |
| Faculty of Engineering, (ASU) | Teaching Assistant, Ain Shams University, Cairo, Egypt | Feb 2022 - Oct 2025 |
| | <ul style="list-style-type: none">- Taught Distributed Computing, Data Structures & Algorithms, High-Performance Computing, and Advanced Programming.- Developed course materials, labs, activities, and supervised student projects. | |
| Government Service | Full Stack Software Developer, Cairo, Egypt | Nov 2022 - Nov 2023 |
| | <ul style="list-style-type: none">- Built full-stack applications using ReactJS, NodeJS, and SQL databases.- Integrated REST APIs and WebSockets to connect embedded devices with UI.- Configured a local network for 50+ PCs using routers and switches. | |
| Google Summer of Code 2023 | Mentor at Jenkins | Feb 2023 - Aug 2023 |
| | <ul style="list-style-type: none">- Guided contributors on effective code reviews, documentation, and feedback.- Assisted in integrating their projects into the codebase. | |
| Google Summer of Code 2022 | Open Source Contributor at CGAL , (C++11/17, Qt, OpenGL) | Oct 2022 - Oct 2022 |
| | <ul style="list-style-type: none">- Refactored the CGAL open-source computational geometry library following the Model–View–Presenter (MVP) design pattern.- Enhanced the library to support runtime configurable features and UI integration.- Applied template metaprogramming, added new features, fixed bugs, and enabled OpenGL support. | |

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| Google Summer of Code 2021 | Open Source Contributor at GraphicsFuzz , (C++, Spir-v) May 2021 - Aug 2021 |
| | <ul style="list-style-type: none"> - Provided support and contributions to SPIRV-Fuzz, a tool used to explore vulnerabilities in GPU drivers on Android and PC platforms. - Applied metamorphic testing principles to generate diverse shader inputs and uncover subtle driver and compiler issues. - Contributed to Shadertrap by developing and integrating GLSL shaders into the Google codebase. - Designed GPU shader programs executed directly on the GPU. - Identified and reported bugs in SwiftShader and spirv-opt. |
| COM-IoT Technologies | Software Engineering Intern , (C++, Qt) Feb 2021 - Apr 2021 |
| | <ul style="list-style-type: none"> - Developed a Kalman filter algorithm used in autonomous vehicles. |
| Resala RTC | Instructor , Cairo, Egypt Jun 2018 - Aug 2020 |
| | <ul style="list-style-type: none"> - Taught C++, object-oriented programming, data structures, and algorithms. |
| Sphinx and CSSI Factory | Interior Design , Industrial Zone, October, Egypt Jun 2016 - Jan 2017 |
| | <ul style="list-style-type: none"> - AutoCAD drafter, document controller |

Skills

- **Languages:** C, C++11/14/17, Java, Python, JavaScript.
- Object-Oriented Design, Design patterns, Multithreading, Concurrency, Memory Management, Data Structures, Algorithms, SOLID principles, Networks, Operating Systems, Distributed Systems, Databases(SQL, NoSQL), Microservices, VLSI concepts, VHDL, and Agile Scrum.
- **Frameworks & Tools:** Qt, CMake, GDB, Valgrind, ASAN, TSAN, Git, gRPC, Docker, Kubernetes, CI/CD, ReactJS, NodeJS, and MongoDB.
- **Libraries & concepts:** OpenMP, MPI, Numpy, Pandas, SoA, SOAP, and RESTful APIs
- **Cloud:** AWS(services - EC2, S3, etc., SageMaker)
- **GPU Development:** CUDA programming.
- Architectural drawing, AutoCAD drafter, presentation, open source contributor, and problem-solving skills.

Projects

- [RIC Testing as a Platform \(ns-O-RAN\)](#) - Open-source testing platform for xApps and RIC integration using OAI and ns-3. **C++, Linux, Docker, Grafana, InfluxDB**
- [OS Simulator](#) - Implemented memory management, scheduling algorithms. **C++11, Qt, Linux**
- [Linux System Monitor \(htop-like\)](#) - Process and resource monitoring tool. **C++, Linux**
- [Search Engine](#) - Indexed 100K+ files using **Trie** indexing, optimized for fast search. **C++, Qt, PostgreSQL**
- [Machine Learning Projects](#) - CNN Dog Breed Classifier, Plagiarism Detector, Sentiment Analysis Web App, and [TorchPIP](#) (Basic Deep Learning framework). **Python, Flask, AWS**

Courses

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| Cloud DevOps Nanodegree, Udacity, August 2022 | AWS re/Start BootCamp, Sprints, July 2022 |
| Complete Modern C++ (C++11/14/17), Dec 2021 | AWS Machine Learning Certified, MCIT, August 2021 |
| React Developer Nanodegree, Udacity, May 2021 | Machine Learning Nanodegree, Udacity, Dec 2020 |
| C++ Nanodegree Program, Udacity, July 2020 | Software Design Specialization, Coursera, June 2020 |
| Python Specialization, Coursera, NTL, May 2020 | Embedded Systems diploma, <i>150 hours</i> , May 2018 |

Certifications

- **AWS Certified Cloud Practitioner**, [CLF-C02](#), August 2024
- Coding4Integrity, UN(United Nations) Competition, Oct 2021
- 2nd place at local ACM, ACPC Problem Solving Competition, Sep 2019

Extracurricular Activities

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| DFA Learning Deutsch | Sep 2021 - Feb 2022 | APEC IT Head | Sep 2020 - May 2021 |
| Udacity Student Ambassador | Nov 2020 - Mar 2021 | TIEC Entrepreneurship Trainee | Aug 2020 - Sep 2020 |

Language

Arabic, Native

English, C1

German, A1