

# SALAH-ELDIN HASSEN

(+20) 1127709232 | Giza / Egypt | [salah0eldin.work@gmail.com](mailto:salah0eldin.work@gmail.com) | [LinkedIn Profile](#) | [Github Profile](#)

## EDUCATION

Cairo University Faculty of Engineering (CUFE)

2021 - 2026

- Bachelor of Electronics and Communications (EECE) With Cumulative Grade: (Very Good).

## WORK EXPERIENCE

Robotics & Embedded Instructor | Beta Academy | Seasonal

Jan 2023 - Jan 2025

- Taught Programming and Arduino to over 600 students with consistently excellent feedback.

Coding AI Trainer | Outlier | Freelancing

Sep 2024 - Dec 2024

- Trained and optimized AI models for coding in C++ and Python tasks to enhance code generation accuracy.

## SKILLS

**Software:** C/C++ - Python - MATLAB - OOP - Automation - Scripting - AI tools - Qt - Git & GitHub - LaTeX.

**Digital:** HDL languages (VHDL, Verilog, System Verilog) - TCL - FPGA Xilinx - Linting.

**Web:** HTML5 - CSS3 - JavaScript - Bootstrap - jQuery - Laravel - SQL - JSON.

**OS:** Linux (Fedora(main), Kali Nethunter, Ubuntu) - Windows.

## PROJECTS

Simulation & Linting Scripts | [Link](#)

Winter 2024

- Developed Python and Shell scripts for creating do files, running ModelSim, waveform viewing (GTKWave).
- Created Python script that creates TCL files for linting designs using Qverify.
- Python - Shell - TCL - GTKWave - Qverify.

Advanced Tic Tac Toe Game | [Link](#)

Spring 2024

- Created the game with AI (minimax), user authentication, game history, and a Qt-based GUI.
- Automated testing via Qt Test and GitHub Actions.
- C++ - Minimax Algorithm - Secure Hashing - Qt - Qt Test - SQLite - Git - GitHub Actions.

Multi-CV Generator Script | [Link](#)

Spring 2025

- Developed a Python script to generate ATS-friendly LaTeX CVs from JSON data (used to generate this CV).
- Python - LaTeX - JSON.

Concurrent Rust TCP Server | [Link](#)

Winter 2024

- Developed a multithreaded Rust TCP server, resolving port conflicts and optimizing client handling.
- Rust - Multithreading.

Advanced Image Editor with Qt and OpenCV | [Link](#)

Summer 2023

- Featuring cropping, resizing, filters, and a dark mode UI with real-time editing.
- C++ - OpenCV - Qt.

SPI Slave Interface | [Link](#)

Spring 2025

- Designed a modular SPI Slave Interface with RAM modules and validated using self-checking testbenches.
- Vivado - Questasim - Verilog - SPI - Single-Port RAM - Constraints - Linting.

Spartan-6 DSP48A1 | [Link](#)

Spring 2025

- Designed and tested a DSP48A1 block in Verilog with C++ golden model and Verilog test benches.
- Verilog - DSP48A1 - C++ Simulation - Test Benches - Linting.

Laravel Workshops System | [Link](#)

Fall 2024

- Built a system for managing workshops with scheduling, registration, attendance, and a responsive UI.
- Laravel - PHP - MySQL - Bootstrap - Git.

## OTHER PROJECTS

- Analog IC Design Projects on Cadence (Virtuoso) | [Link](#)
  - MATLAB Signal Processing and Simulink Control System Projects
  - Reverse Tic Tac Toe Game 3x3 and 4x4 using web | [Link](#) | [Game](#)
  - Self Driving Robots - Path Planning & Obstacle Avoidance (MATLAB, FMM2, A\*) | [Link](#)
  - Maze-Solving Line-Follower Robot Car - Arduino-based pathfinding robot | [Link](#)
  - SFML Chess Game - C++ chess game with an interactive GUI | [Link](#)
- 

## COURSES

### Linux Fundamentals | IEEE ASU

*Aug 2024 - Sep 2024*

- Learned Linux file management, shell scripting, and user permissions.
- Gained skills in process control, package handling, and SSH.

### SOME/IP Workshop | BULLET - Eng/Hazem

*Oct 2024*

- Practical SOME/IP protocol workshop with client-server communication for automotive/IoT.

### Digital Design Diploma | Eng: Kareem Waseem

*Jan 2025 - Mar 2025*

- Studied digital and RTL design using Verilog for synthesis and simulation, FPGA design flow, and static timing analysis (STA).
- Worked with Vivado, IP catalog, clock domain crossing, low-power design, and Questa Lint for verification.

### Digital Verification Course | IEEE CUSB

*Mar 2025 - Current*

- Studied formal verification, UVM, sequences, configuration, and SystemVerilog assertions.
  - Used QuestaSim for simulation, verification planning, and functional coverage.
- 

## EXTRACURRICULAR ACTIVITY

- First place in Robotics Competition (2022).
- ECPC Contestant (2022, 2023).
- NASA Hackathon participant.