Lana Eltambouly

Computer Engineering Student

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Profile

Motivated and detail-oriented Computer Engineering student with a passion for both programming and hardware design. Enthusiastic about coding and problem-solving, with a strong interest in digital design and hardware logic. Committed to continuous learning and dedicated to contributing to impactful engineering projects.

Education

Bachelor Degree in Engineering — Ain Shams University. 2023 – 2027
Junior Electrical Computer Engineering Student

Courses

Software Testing Track — Digital Egypt Pioneer Initiative 07/2025 – Present
A six-month program covering the full SDLC with a focus on testing fundamentals, static and dynamic techniques, test design, and test management. Gain hands-on experience with tools such as Selenium for automation and Postman for API testing, alongside foundational Java programming and prompt engineering skills to support modern, AI-assisted testing workflows.

Digital Design Course — by Eng/ Kareem Waseem 07/2025 – 08/2025
Learned to design and implement digital systems using Verilog, covering combinational and sequential logic, FSMs, and memory elements. Gained practical experience with Vivado for synthesis, QuestaSim for simulation, and QuestaLint for code quality verification

Problem Solving with C++ — Bokra Academy 02/2025 – 04/2025
Solved coding challenges on various platforms using optimized, efficient solutions. Applied advanced C++ concepts, including STL and time complexity analysis, to design algorithms beyond brute force, enhancing problem-solving efficiency and logical thinking.

ASU Racing Team – Powertrain Learning Academy Phase 10/2024 – 11/2024
Learned PCB design and embedded systems. Designed a **buck converter** from scratch including all calculations and implementation. Gained experience with STM32, ARM controllers, interrupts, PWM, and simulation tools like Proteus

Projects

SPI Slave with Single-Port RAM (Verilog + FSM Design) 08/2025
Developed an SPI slave interface integrated with single-port RAM in Verilog, using FSM-based control logic optimized for timing and resource usage. Verified via QuestaSim simulation, waveform debugging, and FPGA synthesis/implementation.

Digital Design Projects (Verilog + FPGA) 07/2025
Spartan-6 DSP48A1 Slice: Modeled a math-intensive DSP block, verified with QuestaSim .do files, and completed full Vivado design flow (synthesis to implementation).

Signals and Systems Audio Project — MATLAB 04/2025
Read and filtered audio signals using FFT and Butterworth filters. Plotted time and frequency domain representations and saved processed audio output.

AC to DC Regulated Power Supply — Electronics Course 04/2025
Built a 220V AC to 9–12V DC power supply using a bridge rectifier and Zener regulation. Included ripple reduction and LED output indicator.

Speaker Audio Amplifier — Electronics Course 04/2025
Designed a 3-stage amplifier (preamplifier, buffer, Class AB) for audio signals from a smartphone. Implemented volume control and validated sound clarity on hardware.

Single-Axis Solar Tracker – Modeling & Mechanism Control (MATLAB/Simulink) 04/2025
Modeled and simulated a single-axis solar tracking system to maximize solar panel exposure. Designed the full control mechanism using MATLAB/Simulink, including light sensor feedback, actuator modeling, and control logic to adjust panel orientation based on light position.

Advanced Circuit Analyzer — C++ 11/2024
Developed a C++ program to calculate total circuit resistance from user-defined string input representing nested series and parallel connections, without using parsing libraries.

Buck Converter – 60W, 24V to 12V — ASU Powertrain 11/2024
Designed and implemented a 24V-to-12V, 5A buck converter. Performed full electrical analysis, component selection, and gate driver design. Developed PWM control on an STM32F103C6 in Embedded C, and completed a double-layer PCB in Altium Designer with DRC validation and BOM documentation.

Line Tracker Car — Arduino 08/2024 – 09/2024
Designed and implemented a line-following robot using IR sensors and Arduino. Completed both simulation and hardware deployment.

Skills

- PCB Design (Altium, Proteus, In Real).
- Digital Circuit Design.
- Programming (C++, Java).
- Power Electronics (MOSFETs, Converters, PWM).
- Embedded Systems (STM32, Arduino).
- Self Learning.
- Project Management.
- Teamwork.
- Critical Thinking.
- Problem Solving.

Languages

- Native Arabic.
- Intermediate English.
- Basic French.