Seam Saif

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Summary

Recent **Electrical and Electronic Engineering** graduate from the Islamic University of Technology (IUT) with hands-on experience in embedded systems, circuit and PCB design, electrical machines and signal processing, plus industrial training in telecom, power generation and electronics manufacturing. Looking for an EEE role where I can contribute to design, testing and problem-solving while continuing to learn.

Education

B.Sc. in Electrical and Electronic Engineering — CGPA **3.43 / 4.00**
Islamic University of Technology (IUT), Gazipur, Bangladesh — Aug 2022 – Oct 2026

HSC, Science — GPA **5.00 / 5.00**
BAF Shaheen College, Dhaka — 2022

SSC, Science — GPA **5.00 / 5.00**
Ideal School and College, Dhaka — 2019

Publication

Journal Article — Under Review

[J1] **S. Saif** and I. Jahan, "**Probabilistic deep learning for cost-sensitive taxi dispatch: When does forecast accuracy translate into decision value?**" *Expert Systems with Applications* (Elsevier), manuscript ESWA-D-26-42120, submitted Oct 2026. **[First author]**

Undergraduate Thesis — Completed

- "A Study on Design and Sensitivity Analysis of Quantum-Corrected Carrier Confinement in **IGZO/ITZO Dual Channel TFTs**", covering device-level modelling and sensitivity analysis of oxide thin-film transistors.

Conference Paper — Submitted

[C1] **S. Saif**, I. Jahan, A. M. Maisha and M. M. Billah, "**6-Bit Computer Implementation with Optimized Display and Reduced T-states**," *1st IUT International Conference on Core Engineering & Technology (IUT-ICCET 2024)*, Department of EEE, Islamic University of Technology, Gazipur, Bangladesh. **[First author]**

Technical Skills

Programming	Python, C/C++, MATLAB, 8086 Assembly, 8051 (MCS-51) Assembly
Embedded & IoT	Arduino, ESP32, AT89C51, microcontrollers and microprocessors, PLC, firmware development, sensor interfacing, I^2C, relay and servo control, ThingSpeak IoT cloud
Circuit & PCB	Proteus Design Suite (schematic capture, simulation, PCB layout), PSpice, OrCAD; Verilog, VHDL, digital logic design, VLSI and computer architecture
Signal Processing	Digital signal processing, Mel-spectrogram feature extraction, sliding-window pattern matching, peak detection, Librosa
Machine Learning	Machine-learning-based forecasting; scientific Python stack: NumPy, SciPy, Matplotlib
Power & Machines	Three-phase motor starting, star-delta starters, contactors, on-delay timers, overload relays, MCB/RCCB, switchgear, panel wiring, SCADA; PSIM power-electronics simulation
RF & Networks	Atoll, NYUSIM, LinkPlanner, RF network planning, mobile and core network architecture
Tools	Git, GitHub, Arduino IDE, emu8086, ASEM-51, LaTeX, Microsoft Office, Canva; AI tooling (Claude, ChatGPT, Gemini, DeepSeek)
Professional	Leadership, strategic thinking, research and analysis, teamwork, technical communication

Academic Projects

SAP-1 Architecture-Based 6-Bit Computer — *Proteus | Digital Logic*

- Designed the instruction register, ALU, display unit and **PCB layouts** for a 6-bit **SAP-1 CPU** in **Proteus** that executes each instruction in **5 T-states** with decimal 7-segment output [C1]. Video demo

Smart LPG Gas Detection and Safety System *ESP32 | IoT*

- Wrote **ESP32** firmware that reads gas and flame sensors and drives a **four-state safety response** (exhaust fan, water pump, servo shutoff, alarm) with live **ThingSpeak** monitoring over Wi-Fi.

Multi-Sensor Home Automation System *Arduino Nano | Instrumentation*

- Combined **five sensor-driven functions on one Arduino Nano**: light-based activation, temperature-controlled fan, smoke alarm, ultrasonic tank-level display and automatic water dispensing.

8051 Tic-Tac-Toe Game *AT89C51 | MCS-51 Assembly*

- Programmed tic-tac-toe in **8051 assembly** with two-player and **Player vs. AI** modes, keypad input, LCD prompts and a 3×3 LED board, simulated in Proteus.

Audio Pattern Detection via Mel-Spectrogram Matching *Python | DSP*

- Built a **DSP** pipeline in Python (Librosa, NumPy, SciPy) that matches **Mel-spectrogram** features with a sliding window and **detected 19 occurrences** of the target pattern with timestamps.

Star-Delta Three-Phase Motor Starter *Electrical Machines | Hardware*

- Wired and commissioned a **440 V three-phase starter panel** with contactors, an on-delay timer and overload protection, **reducing motor starting current** through timed star-to-delta transfer.

Dynamic Table Sorter *8086 Assembly | emu8086*

- Wrote an **8086 assembly** table manager that **sorts complete rows** by any user-selected column.

Typing Speed Test Application *MATLAB GUI | OOP*

- Built a **MATLAB** GUI with timed, word-count and custom tests that reports **WPM and accuracy**.

Industrial Training

Robi Axiata PLC Dhaka, Bangladesh

- Mobile and core network operations, network architecture and service infrastructure. Oct 2025

Bangladesh Atomic Energy Commission (BAEC) Savar, Bangladesh

- **3 MW TRIGA Mark-II research reactor**: instrumentation, safety and cooling systems. Oct 2025

Ghorashal Training Center Narsingdi, Bangladesh

- Thermal power plant: turbines, boilers, switchgear and **SCADA**-based control. Oct 2025

Walton Hi-Tech Industries PLC Gazipur, Bangladesh

- **PCB assembly, SMT and production testing** on electronics lines; compressor and motor R&D. Oct 2025

Certification and Achievements

First author of a conference paper [C1] written as an undergraduate student.

English Language Certification CEF **B2**
British Council Bangladesh Mar – Apr 2019

- **Upper Intermediate** level after a 24-hour intensive course; CEF B2 maps to IELTS 5.5–6.5.

References

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(B.Sc. Thesis Supervisor)

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