Mishal Sagar

+92-312-4017973 | hi@mishalsagar.com | linkedin.com/in/mishalsagar

Education

Lahore University of Management Sciences — Lahore, Punjab, Pakistan
Bachelor of Science in Electrical Engineering — *Aug. 2023 – May. 2027*
- CGPA: 3.8/4.0 | Dean's Honor List, 2023–2026

Lahore Grammar School — Lahore, Punjab, Pakistan
Ordinary & Advanced Levels — *Aug. 2018 – June 2023*

Experience

Teaching Assistant – EE 330: Electromagnetic Fields and Waves — Aug. 2026 – Present
Lahore University of Management Sciences — *Lahore, Punjab, Pakistan*

Teaching Assistant – EE 241L: Introductory Circuits Lab — Jan. 2026 – May 2026
Lahore University of Management Sciences — *Lahore, Punjab, Pakistan*

Teaching Assistant – EE 242: Circuits II — Jan. 2026 – May 2026
Lahore University of Management Sciences — *Lahore, Punjab, Pakistan*

Teaching Assistant – MATH 230: Probability — Sep. 2025 – Dec. 2025
Lahore University of Management Sciences — *Lahore, Punjab, Pakistan*

Projects

SNN Design for 65nm Analog Chip | *SPICE, Neuromorphic Design*
- Designed a spiking neural network (made up of integrate-and-fire neuron cells) entirely in custom NMOS/PMOS analog circuitry at 65nm process, without relying on standard CMOS digital logic blocks
- Designed programmable synaptic weight elements and inter-neuron interconnect; analyzed area coverage and spike-timing dynamics through SPICE-level simulation

Wearable Gestural Input Interface | *Tiva C, UART, HID, Embedded C*
- Developed a glove-based wearable device with a Tiva C microcontroller to translate finger orientations into real-time keyboard inputs
- Configured the device as a Human-Interface Device (HID) using UART serial communication for PC interaction

Socially Aware Navigation on RoboMaster EP Core | *YOLOv8n, DWA, Python*
- Implemented human pose detection using YOLOv8n-pose to identify and track nearby pedestrians in real time
- Integrated the Dynamic Window Approach (DWA) algorithm to enable socially aware motion planning
- Deployed the full perception-planning pipeline on a RoboMaster EP Core platform

Analog PPG Heart Rate Monitor | *Op-Amps, BJTs, Active Filters, PCB Design*
- Utilized IR-reflective Photoplethysmography (PPG) to detect small volumetric changes in blood flow
- Built a signal conditioning and amplification chain using Op-Amps, BJTs, and active filters
- Optimized component selection and PCB design for high signal integrity and robust ambient light/noise rejection

Extracurriculars & Leadership

Vice Chair — June 2026 – Present
IEEE LUMS Student Chapter — *Lahore, Punjab, Pakistan*
- Support the Chair in setting the chapter's strategic direction, coordinating directors and committees, and running technical workshops, talks, and professional development events for members
- Manage chapter operations, including event planning, budgets, and industry and faculty outreach, while mentoring members and acting as Chair in their absence

Technical Skills

Core Focus: AI on Edge, Model Compression, Digital System Design, AI for Hardware, Neuromorphic Computing
Languages & Tools: Python, C/C++, SystemVerilog, MATLAB, Embedded C, ROS
Hardware & EDA: Vivado, Questa, SPICE Simulation, PCB Design, Digital System Design, 65nm Process Design
Areas: Edge AI, Machine Learning, Analog IC Design, Embedded Systems, Internet of Things, Robotics
Design & Media: Adobe Creative Suite, Canva, Motion Design, Graphics Design