



Syed Hassan Ali

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Research Interests: Artificial Intelligence, Machine Learning, Medical Imaging, Computer Vision, Signal Processing
Human–AI Interaction, Electronics, Intelligent Systems, Healthcare

Languages: English (Fluent), Pashto (Native), Urdu (Native)

ABOUT ME

Research-focused and creative Engineer with a strong foundation in Electronics, Artificial Intelligence and Graphic Design. Experienced in applying Knowledge to real-world problems and aspiring to contribute to advanced research in AI through Scholarship at the graduate level.

EDUCATION

Bachelor of Science in Electronics Engineering

(23/09/2019 – 28/09/2023)

University of Engineering and Technology, Peshawar – website: <https://www.uetpeshawar.edu.pk>

Division: 1st (CGPA: 2.57/4.0) Final Grade: B

Thesis Advisor: Sania Syed (Lecturer)

Thesis Title: 'Design and Implementation of Digital Butterworth IIR Filter Using Xilinx System Generator on FPGA'

Major Courses: Electronics, Communications, Signal Processing, Control Systems, Power, VLSI, FPGA, etc.

RESEARCH PROJECTS

Solar Production and Load Prediction using Machine Learning & Deep Learning

(07/07/2024 – 28/08/2024)

- Developed predictive models to forecast PV generation and load at 10-minute intervals with 1–4 hour look-ahead.
- Applied advanced ML/DL methods (Random Forest, Gradient Boosting, LSTMs, XGBoost and Deep Neural Networks), leveraging feature engineering and time-series analysis.
- Achieved a Mean Absolute Error (MAE) score of <1300, ranking in the Top 30 on the competition leaderboard.

Deep Reinforcement Learning for Flappy Bird Gameplay

(07/07/2024 – 28/08/2024)

- Implemented a DNN-based agent to play Flappy Bird autonomously, applying concepts of reinforcement learning.
- Designed and trained models to optimize decision-making (jump/fall) using state representation of game frames.
- Demonstrated successful generalization, enabling the AI agent to outperform baseline heuristic strategies.
- Github Repository Link: https://github.com/habaxha/DNN_Flappy_Bird_Game

Object Detection & Filters Application using YOLO

(07/07/2024 – 28/08/2024)

- Built a real-time object detection application leveraging YOLO for robust and efficient image analysis.
- Integrated custom filters into the detection pipeline for image enhancement, object tracking, and augmentation.
- Applied transfer learning and fine-tuning to improve detection accuracy across custom datasets.
- Github Repository Link: https://github.com/habaxha/Object_Detection_and_Filters_Application_using_YOLO

RESEARCH PUBLICATIONS

Design and Implementation of Digital Butterworth IIR Filter Using Xilinx System Generator on FPGA

Conference, INFTEC 2025 – Page: 149 – 163 – Link: <https://www.inftec.org/congress-books> (01/08/2025)

Leveraging Transformer-Based Generative Adversarial Networks to Improve Intrusion Detection in Networks

Conference, INFTEC 2025 – Page: 406 – 420 – Link: <https://www.inftec.org/congress-books> (01/08/2025)

CONFERENCES AND WORKSHOPS

II. International Data Science and Information Technologies Congress (INFTEC 2025)

(23/06/2025)

Tokat Gaziosmanpaşa University, Tokat, Turkey – website: <https://www.inftec.org>

1st National Workshop on AI in Healthcare, Drug Discovery and Allied Sciences (AI-H2D)

(23/11/2023)

Ghulam Ishaq Khan Institute of Engineering Sciences and Technology – website: <http://www.giki.edu.pk>

Embedded Systems Workshop

(10/08/2023)

University of Engineering and Technology, Peshawar – website: <https://www.uetpeshawar.edu.pk>

PCB Designing using Altium Designer Workshop

(06/10/2022)

University of Engineering and Technology, Peshawar – website: <https://www.uetpeshawar.edu.pk>

IC Design using Open-Source Tools Workshop

(19/05/2022)

University of Engineering and Technology, Peshawar – website: <https://www.uetpeshawar.edu.pk>

New Trends in the Solar Industry in Pakistan Solar Market Workshop

(08/10/2019)

University of Engineering and Technology, Peshawar – website: <https://www.uetpeshawar.edu.pk>

WORK EXPERIENCE

Artificial Intelligence Intern

(07/07/2024 – 28/08/2024)

Ghulam Ishaq Khan Institute & Skylabs AI – Swabi, Pakistan – **website:** <http://www.giki.edu.pk>

- Developed and deployed ML models (CNNs, NLP with Transformers, GANs) through weekly sprints, completing 100% of assigned projects on time.
- Designed reinforcement-learning Flappy Bird agent with TensorFlow, achieving >90% success rate across 2,500 generations.
- Built Kaggle solar forecasting pipeline (XGBoost, LightGBM, LSTM), securing Top 30th with a 12% MAE improvement.

Embedded Systems Intern

(12/09/2023 – 24/10/2023)

National Institute of Electronics (NIE) – Islamabad, Pakistan – **website:** <http://www.nie.gov.pk>

- Engineered an ESP-12F (ESP8266)-based fuel mileage tracker, integrating 2 sensors (Hall-effect + ultrasonic) with ±5% error.
- Implemented real-time data pipeline with Firebase Realtime DB, optimizing and enabling instant dashboard visualization.
- Programmed in Arduino C++, reducing sensor noise by 30% via calibration and filtering algorithms.

Network and Security Intern

(01/01/2022 – 28/02/2022)

Pakistan Telecommunication Company Limited (PTCL) – Abbottabad, Pakistan – **website:** <https://ptcl.com.pk>

- Supported SAP ECC Parking & Posting workflows, contributing to 20+ operations within Drawing & Disbursement Office.
- Analyzed network infrastructure, assisting in 2+ VLAN setups and reviewing routing/security protocols.
- Documented telecom operations, strengthening understanding of enterprise IT systems across 10+ PTCL branches.

Freelance & Project Management

(2019 – Present)

- Delivered 1000+ freelance projects across Graphic design, AI and Python programming, maintaining 95%+ client satisfaction.
- Managed a small team of 3–5 freelancers to complete end-to-end AI/web development projects on a commission basis.
- Secured clients via Fiverr, LinkedIn, and local networks, generating consistent monthly income.

LEADERSHIP AND VOLUNTEERING

Young Leaders Parliament (Member, 15+ team members)

(2024 – 2025)

- Led and coordinated a 15-member youth team to organize medical camps, expos, and environmental campaigns in collaboration with district health, forestry, and youth departments.
- Engaged 500+ residents through tree plantation drives, hygiene awareness events, and partnerships with government stakeholders to maximize community impact.

Mohib Safe City Program (Community Volunteer, 10+ team members)

(2021 – 2022)

- Managed 10+ member team, delivering safety workshops, emergency awareness sessions, and citizen engagement campaigns.
- Strengthened collaboration between residents, enhancing program visibility and building community trust.

CERTIFICATIONS

Generative AI Application Developer Certificate

(01/12/2024 – 05/02/2025)

Pak Angels, Silicon Valley, California, United States of America – Link: [View Certificate](#)

Data Analytics Bootcamp

(07/07/2024 – 01/09/2024)

Alexander Freberg – Link: [View Certificate](#)

Advanced AI Bootcamp On Deep Neural Network

(07/07/2024 – 28/08/2024)

Ghulam Ishaq Khan Institute & SkyLabs AI – Link: [View Certificate](#)

PEC Registered Engineer

(22/04/2024)

Pakistan Engineering Council – Link: [View Certificate](#)

SKILLS

Programming Languages:

Python	C/C++	JavaScript	SQL	HTML & CSS
Intermediate	Intermediate	Beginner	Intermediate	Intermediate

Technical Tools & Frameworks: Jupyter, GitHub, Git, Version Control, SQL Workbench, Power Bi, VS Code, Arduino IDE, MATLAB, Proteus, Altium, Easy EDA, PSpice, Google Firebase, MS Office, Adobe Illustrator, Adobe Photoshop, Framer, Figma

Libraries: TensorFlow, PyTorch, scikit-learn, Pandas, NumPy, Matplotlib, OpenCV, Tkinter

Soft Skills: Leadership, Time management, Organizational skills, Problem solving, Critical thinking, Communication, Self-motivation, Innovative, Flexibility

REFERENCES

Sania Syed

Project Supervisor and Teacher

Department of Electronics Engineering

UET Peshawar

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Dr. Adam Khan

Chairman and Course Teacher

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