

# Rabbia Waheed – AI Developer

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## Professional Summary

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A highly skilled Electrical Engineer turned AI Developer with a passion for machine learning, deep learning and innovative technical solutions. Proficient in designing and troubleshooting electrical circuits, developing printed circuit boards, and producing precise technical documentation. In my AI career, I excel at implementing intelligent algorithms for software modules and creating user friendly GIS applications using QGIS, ensuring exceptional quality and performance. Proficient in C++, Python, Qt framework, MATLAB, Power BI, and Tableau, I leverage a robust technical toolkit to deliver cutting-edge solutions. A versatile professional with strong English proficiency and honed multitasking abilities, I am dedicated to driving advancements in artificial intelligence through creative and collaborative approaches.

## Skills

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- **Programming & Scripting:** C++, Python, MATLAB, SQL, PostgreSQL, TimeScaleDB
- **Frameworks** Scikit-learn, PyTorch, TensorFlow, OpenCV, Matplotlib, Seaborn, NumPy, Dataframe
- **Developer Tools:** Git, GitHub
- **GIS & UI Development:** QGIS, PyQt, Qt Framework
- **Robotics Development & Simulation::** ROS, Webots
- **3D Simulation & Game Engines:** Unreal Engine
- **Electrical & Circuit Design:** Proteus, Eagle, Altium Designer, OrCAD Allegro
- **Documentation & Writing:** LaTeX, Microsoft Word,
- **Visualization & Reporting:** Power BI, Tableau, Visual Paradigm
- **Web & Media Tools:** Shopify, Canva

## Experience

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**Center of Artificial Intelligence and Computing, NASTP**  
*AI Developer*

Rawalpindi, Pakistan  
July 2023 – Present

- Developed and maintained a real-time early warning system using rule-based logic and AI modules
- Designed and implemented a PostgreSQL database with TimescaleDB extension for handling time-series data
- Built a GIS-based application interface for visualizing alerts and real-time data overlays
- Collaborated on full-cycle development from data ingestion to deployment and testing

**Skills:** PostgreSQL, TimescaleDB, Python, QGIS, Real-Time Systems, Rule-Based Logic, GIS Application Development, AI Integration

**Pakistan Detector Technologies Pvt. Ltd**  
*Printed Circuit Board Design Engineer*

Islamabad, Pakistan  
August 2022 – July 2023

- Designed and developed Printed Circuit Boards (PCBs) with optimized layouts for performance, manufacturability, and cost
- Conducted design reviews and implemented revisions based on engineer and customer feedback
- Generated complete documentation for PCB fabrication, assembly, schematics, and layout

- Worked on detailed routing and layout using industry-standard EDA tools
- Analyzed and resolved design-related issues during the development lifecycle
- Recommended and implemented improvements to existing board designs
- Supported functional testing and troubleshooting of PCBs; contributed to the development of test procedures

**Skills:** PCB Design, Proteus, Eagle, Altium Designer, OrCAD Allegro, Circuit Debugging, Schematic Design

#### **Zeests.com**

*Sales Coordinator*

Peshawar, Pakistan  
Oct 2021 – July 2022

- Analyzed customer shopping data to identify potential leads and improve targeting
- Managed website and social media accounts for product visibility
- Responded to customer inquiries and resolved product-related issues
- Wrote product descriptions for Shopify-based storefront
- Collected feedback and prepared feasibility reports for business insights

**Skills:** Shopify, Google Sheets, Microsoft Excel, Canva, Customer Analysis, Digital Marketing

#### **RYTHM LED Bulb Organization**

*Business Development Officer*

Islamabad, Pakistan  
Sep 2021 – Feb 2022

- Built and maintained strong relationships with stakeholders and potential clients to support business growth
- Analyzed customer feedback to assess satisfaction and inform service improvements
- Recruited, trained, and supervised sales staff to enhance team performance
- Conducted sales analysis and lead evaluation to optimize campaign effectiveness
- Planned and executed marketing campaigns from ideation to performance analysis
- Managed social media content and YouTube SEO to increase brand visibility
- Drafted training manuals, business systems, and internal documentation for operations and administration
- Supported inventory and logistics processes by preparing GRNs and tracking stock movements

**Skills:** Sales Strategy, SEO, Content Creation, Google Ad Manager, Microsoft Office, Campaign Management

## **Education**

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### **MS Robotics and Artificial Intelligence Engineering**

National University of Science and Technology (NUST), Islamabad

**Thesis:** Predictive Intelligence Threat Detection System in Maritime Environment

2024–Present

### **BS Electrical Engineering**

Institute of Space Technology, Islamabad

**Thesis:** Design creation of 9T SRAM IP with In-Memory Computation [View Thesis]

2018–2022

## Certifications

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| • Python Crash for Data Science (AI, Big Data, ML) | PNY Training Institute |
| • Python for Everybody                             | Py4E                   |
| • Intermediate Python                              | DataCamp               |
| • Unit Testing for Data Science                    | DataCamp               |
| • Git and GitHub                                   | 365 Data Science       |
| • Building Business Reports Using Power BI         | 365 Data Science       |
| • Data Processing with NumPy                       | 365 Data Science       |
| • Machine Learning Specialization                  | Coursera               |

## Projects

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- **Robot Navigation and Path Planning**
  - Developed and implemented Bug 1, Bug 2, Tangent Bug, and a custom Bug algorithm for disc robot navigation and obstacle avoidance
  - Designed Potential Field, Custom Potential Field, and Navigation Algorithm in Sphere World for efficient path planning
  - Built kinematic model of a tricycle robot and implemented RRT algorithm with Kalman Filtering for trajectory correction
- **Humanoid Robotics**
  - Implemented forward kinematics of NAO robot's leg and arm to compute end-effector positions based on user-defined joint angles
  - Performed inverse kinematics for the leg and arm of the NAO robot to determine joint angles for desired end-effector positions
- **AI, Machine Learning, and Deep Learning**
  - Implemented A\* algorithm using Manhattan Distance and Misplaced Tiles heuristic for optimal path finding
  - Built a Checkers game using Gradient Descent to optimize move selection
  - Applied Random Forest, Support Vector Machine, and Gradient Boosting on ECG time-series data
  - Developed a Convolutional Neural Network (CNN) model for classification of ECG signals
  - Built a hand gesture recognition system using computer vision to control laptop volume in real-time
  - Developed **EgyptianGen** – a text-to-image generator that produces historic-style images of ancient Egypt from descriptive prompts
- **Software and Embedded Systems**
  - Developed Cash and Carry software and Library Management System using C++
  - Designed a battery charging and monitoring system, and a multi-voltage power supply
- **Mechanical and Electrical Prototyping**
  - Designed a conveyor prototype and a 3D fidget spinner model during mechanical workshops
- **Aerospace and Communication**
  - Contributed to Attitude Determination and Control for the ICUBE-CSAT satellite
  - Conducted drive testing to analyze mobile signal strength in various localities
- **Research Projects**
  - Conducted research on employee performance and empowerment of free-will, and drafted a review paper for submission
  - Investigated the potential of “Ao Parhyn” – a proposed educational platform for students and teachers

## Achievements

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- **Official Microsoft Word Certification**
- Awarded **Best Ambassador** at APES'19
- Received **Souvenir for Outstanding Performance** in Belt and Road Aerospace International Conference (BARAIA)
- **Best Social Media Head** Award at E-FEST
- **Best Employee of the Month** at RYTHM Traders
- **Best Employee of the Month** at Futuristic Research and Development (Pakistan Detector Technologies)
- **Founder and President** of Rafsan e Subh Foundation
- **General Secretary** at IEEE, IST
- **Sector Commanding Officer** at UMEED, IST
- **Sector Head** at UMEED, IST
- **Deputy Director Protocols** at Character Building Society, IST
- **Ambassador** at FES Education Expo, Islamabad
- **Organizer** at ICASE and IST Summer Camp
- Participation in Speed Wiring Competition and FES Education Expo (Event Management) at E-FEST
- Participation in **Data Analysis Expertise Competition**
- Contributed to the design of **ICUBE-CSAT** CubeSat
- **Volunteer** at Al-Raziq Charity Foundation and Noreen Zindagi Welfare Trust
- Volunteer at IYC'19, E-FEST, and various IST initiatives