Engr. Firdous Waggan

Computer Systems Engineer | Networks and System Security

Contact Details

Address	Larkana City, Province of Sindh, Pakistan
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Professional Summary

Dedicated and detail-oriented Computer Systems Engineer with over 3.5 years of experience specializing in hardware design, network administration, and organizational management. Proven expertise in designing and managing secure networks, implementing advanced security protocols, and optimizing IT infrastructure for enhanced performance. Adept at leading cross-functional teams, managing research initiatives, and delivering innovative solutions in dynamic environments. Known for excellent problem-solving skills, effective communication, and the ability to bridge the gap between technical and organizational objectives, driving operational efficiency and security.

Core Competencies

- Network Administration: Cisco Packet Tracer, Wireshark, IPv4, Routing & Switching, MPLS, SSH/TLS, Cloud Security
- Cyber security Expertise: SIEM, SOAR, EDR, XDR, Firewalls, AES, DES, RSA, System Vulnerabilities, Malware Analysis
- Hardware Development: Verilog, Vivado, Xilinx, Quartus, Proteus, Atmel Studio, Logisim
- Software Development: Python, C++, C, Java, MATLAB, Latex, Qtspim, Android Studio
- Web Development: HTML, CSS3, Django, JavaScript, FrontPage
- Version Control & Collaboration Tools: GitHub, GitLab
- System Design: Circuit Boards, Processors, Chips, StarUML
- Project Management: Microsoft Project, Eclipse
- AI & Data Processing: EasyNN, Roboflow
- Soft Skills: Leadership, Communication, Public Speaking, Problem Solving, Collaboration, Adaptability

Professional Experience

NED University of Engineering and Technology, Karachi, Pakistan

Role: Lecturer
Dates: Apr 2025 – Present
Delivering lectures on variety of subjects including Parallel and Distributed Computing, Logic Design and Software Engineering, Conducting Lab Sessions, Working as Class Advisor for Third Year BS programs.

Embedded Systems and Computer Vision (ESCV) Lab, Karachi, Pakistan

Role: Research Assistant/Network Manager
Dates: Nov 2023 – Mar 2025
Devising and Implementing AI models on Hardware Platforms using Vivado Suite. Specifically, CNIC field detection AI models on FPGA platforms.

Xcelerium LLC, Pakistan/USA

Role: Software and Design Engineer

Dates: Mar 2022 – Oct 2023

Developed Verilog code for IC modules and managed toolchain, compilers, and network configurations, including Internet and Ethernet. Conducted functional testing for instructions and modes using C and Python.

Shaheed Mohtarma Benazir Bhutto Medical University (SMBBMU), Pakistan

Role: Engineering Intern

Dates: Apr 2021 – May 2021

Formatting website's Front end, trying to resolve networking and security issues (firewall, subnetting, MAC address), Managing Database and Queries.

Education

Masters of Engineering in Networks and Security   Feb 2023 – Dec 2024

NED University of Engineering and Technology, Karachi

CGPA: 3.950

Bachelors of Engineering in Computer Systems   Sep 2018 - Aug 2022

NED University of Engineering and Technology, Karachi

CGPA: 3.550

A-Levels (British Council)   Aug 2016 - Jul 2018

The Oxford School, Dubai

Percentage: 85.63%

IGCSE (O-Levels British Council)   Aug 2013 - Jul 2016

The Oxford School, Dubai

Percentage: 89.0%

Achievements

- ✓ Engineering Softskills Training   Jul 2022
- ✓ Second Place in Cyber Security Warriors Learn-A-Thon   Aug 2022
- ✓ Interactive Session with US Ambassador   Mar 2022
- ✓ AI Festival 2.0   Nov 2019

Key Projects

- Password detector using ATmega162 processor and Keypad
- Speech Recognition based Tasbeeh (Counter) – Website
- Voltage Regulator
- Travel Application
- Designed Verilog RTL module for Complex Division
- ROI Localization on SoC
- Diabetic Retinopathy Diagnosis System
- 4 Pics 1 Word Game
- Chat Application using sockets
- Ping Pong - Sequence Generator
- Carried Out PrintNightmare and HeartBleed Attacks on VMs, AES, DES on Linux

Hobbies

- Basketball
- Badminton
- Reading
- Writing
- Painting
- Travelling
- Languages
- Poetry