Mustafa Khan *Software Engineer*

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📍 Peshawar, Pakistan

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Computer Science Generalist with extensive knowledge across multiple domains, because of my insatiable curiosity. Proficient in **Nodejs, C, Python, and intermediatly skilled in Golang** with a solid understanding of **Full-stack development**. Proven track record in building **scalable** applications and **real-time data communication** systems. Experienced in **Low-level C and Assembly Programming, OS development, API design, and Databases.**

📂 PROJECTS

2024 – present	**TinyOS** ↗ A Tiny Operating System for RaspberryPi from scratch in Assembly and C, with complete Bootloader, Kernel and Drivers.
2024 July – 2024 August	**Tiny Compiler** ↗ A Tiny Compiler for a basic C like programming language with complete lexer, parser and interpreter.
2024 July – 2024 July	**MNIST Digit Recognizer Neural Network from scratch in C** ↗ A complete 3 layer (input, hidden, output) neural network for handwritten digit recongition from scratch in C.
2024	**Smart Homes Control and Automation App in React Native** Cross-Platform Mobile app for Smart Home control and automation in react native, with complete state management, and all CRUD operations to the backend server through RESTful APIs.
2024	**Backend Server for Smart Homes Control and Automation in Nodejs** ↗ Fully Functional Backend Server with HTTP for frontend apis and MQTT for managing IoT hardware devices with authentication and authorization over JWT, with well-structured error handling and MongoDB as the database.
2022	**Full fledged Restaurant Backend Server with Sessions, Cookies and OAuth in Nodejs** ↗ Node.js server that provides restaurant information from the associated MongoDB

🏅 AWARDS

2024 April	**Best Final Year Project - Autonomous Ambulance Drone for First Aid Kit Delivery, Institute of Management Sciences, Peshawar**
2024 May	**LLM Hackathon Winner - Llama 3 8B locally hosted powered Resume Analyzer, Institute of Management Sciences , Peshawar**
2023 November	**1st position at AFS Venture Spark 2023 - National Level Startup Competition,** **Muhammad Nawaz Shareef University of Agriculture, Multan**

📑 CERTIFICATES

- Internet of Things and Embedded Systems ↗
- Operating Systems and You: Becoming a Power User ↗
- React Advanced ↗

- The Arduino Platform and C Programming ↗
- Server-side Development with NodeJS, Express and MongoDB ↗
- React Basics ↗

- Designing Hardware for Raspberry Pi Projects ↗
- Building Modern Node.js Applications on AWS ↗
- Linear Algebra for Machine Learning and Data Science ↗

🧠 SKILLS

OS development • Embedded Systems • IoT • ROS (Robot Operating System) • MERN Stack • React Native • SQL • Flask • Git • Linux • Jenkins • AWS • Langchain and Agents • Machine Learning

🎸 INTERESTS

Open Source Contribution • Hackathons • Personal Programming Projects • Tech Meetups and Conferences • Reading Research Papers • DIY Electronics Projects • Mathematics and Algorithms • Watching Rick and Morty • Lex Fridman's Podcasts

🌐 LANGUAGES

English	●●●○○	Urdu	●●●○○
Pashto	●●●●○	German	●○○○○

🎓 EDUCATION

2020 – 2024 Peshawar, Pakistan	**Bachelor's in Computer Sciences,** **Institute of Management Sciences** ↗