

Ali Raza Soomro

Software Engineer · Research Assistant Applicant

+92-305-2239442 | alirazasoomro031@gmail.com
linkedin.com/in/ali-raza-soomro-5a6777233 | github.com/Ali-RazaSoomro | Karachi, Pakistan

Research Interests

Artificial Intelligence · Computer Vision · Optical Character Recognition · Geographic Information Systems (GIS) · Spatial Databases · Machine Learning · Cloud Computing · Distributed Systems · Real-Time Systems · Backend Engineering · Human-Centered Software Systems · Smart Infrastructure · Environmental Monitoring Technologies

Education

Mehran University of Engineering & Technology (MUET), Jamshoro

Bachelor of Engineering (B.E.) in Software Engineering

Graduated: Nov 2025

CGPA: 3.65 / 4.00

PakTurk International Schools & Colleges, Karachi

Intermediate (Pre-Engineering)

2021

Percentage: 92.45%

PakTurk International Schools & Colleges, Karachi

Matriculation

2019

Percentage: 88%

Research-Oriented Experience

Naval Research & Development Institute

Software Engineer Trainee

Apr 2026 – Present

Pakistan

- Developed an offline GIS platform using **PostgreSQL/PostGIS**, **Leaflet**, and **MapLibre GL** capable of operating without internet connectivity; applied spatial database concepts for mapping and geospatial analysis.
- Built GPS tracking systems with offline operation capability; implemented real-time communication using **WebSockets** and integrated **Python**-based processing pipelines with backend services.
- Worked with hardware communication and serial interfaces in a mission-critical, high-reliability engineering environment.

Research Areas: GIS, Spatial Computing, Distributed Systems, Real-Time Systems, Hardware–Software Integration

Webperts

Associate Software Engineer

June 2023 – Jan 2026

Pakistan

- Designed relational database schemas for large-scale applications and developed secure authentication and authorization mechanisms for enterprise SaaS platforms.
- Built scalable RESTful services and deployed production applications on **AWS** and **DigitalOcean**; implemented role-based security and backend architecture for multi-tenant systems.
- Integrated AI and automation pipelines using **OpenAI / OpenRouter** for LLM-driven workflows, **Exa AI** for neural search, and **OpenCV / EasyOCR** for computer vision and document processing.

Research Areas: Secure Software Systems, Database Architecture, Cloud Computing, AI Integration

Research & Engineering Projects

Offline GIS Mapping and GPS Tracking Platform

React · Node.js · PostgreSQL · PostGIS · Leaflet · MapLibre · MBTiles · WebSockets · Python

- Developed an offline geospatial platform capable of functioning without internet connectivity; designed a spatial database using **PostGIS** for efficient geospatial storage and querying.
- Implemented offline vector tile rendering using **MBTiles**; built GPS telemetry pipelines and integrated hardware communication with software services.
- Applied spatial computations including routing and geographic calculations; achieved real-time location synchronization via **WebSockets**.

Research Areas: GIS, Spatial Computing, Distributed Systems, Real-Time Systems

OCR-Based Inspection Platform

Python · OpenCV · EasyOCR · PostgreSQL

- Built an automated OCR system for extracting structured information from inspection images; applied **computer vision** techniques for image preprocessing and noise reduction.

- Integrated OCR output with backend workflows to automate document processing pipelines; applied **Random Forest** for classification tasks.

Research Areas: Computer Vision, OCR, Image Processing, Machine Learning

AquaGuard – AI-Assisted Water Quality Monitoring System

GNEC Hackathon 2025

React · Node.js · PostgreSQL · AWS EC2 · AWS RDS · AWS S3 · AWS Cognito

- Developed backend APIs for environmental monitoring; implemented secure cloud architecture using **AWS** (EC2, RDS, S3, Cognito).
- Integrated AI prediction services with backend workflows; built a public complaint reporting platform aligned with **UN Sustainable Development Goals**.

Research Areas: Environmental Informatics, Smart Infrastructure, AI-Assisted Decision Support

School Visitor Queue Management System

React · TypeScript · PostgreSQL · WebSockets · Node.js · AWS

- Designed a real-time queue synchronization platform with event-driven backend architecture; implemented concurrency-safe queue processing using **PostgreSQL** stored procedures and database triggers.
- Developed analytics and reporting dashboards; integrated Twilio SMS and WhatsApp notifications for real-time alerts.

Research Areas: Distributed Systems, Concurrent Computing, Database Systems

Capital8 (ASEAN Venture Hub)

React · TypeScript · PostgreSQL · Supabase · OpenAI · Apify · Apollo.io · Prospeo

- Implemented **Role-Based Access Control** using Supabase Authentication and **PostgreSQL Row-Level Security**; designed secure authorization workflows and built multi-role enterprise dashboards.
- Developed an **AI-powered automation pipeline** integrating **OpenAI / OpenRouter** for LLM-driven content generation, **Exa AI** for neural search, **Apify** for LinkedIn data extraction, **Apollo.io** for corporate data enrichment, and **Prospeo** for lead enrichment mapping profiles to job history, company size, revenue, and funding stages.

Research Areas: Secure Software Systems, Database Security, AI Integration, Enterprise Systems

Technical Skills

Languages	JavaScript (ES6+), TypeScript, Python, SQL, PL/pgSQL		Procedures, DB Triggers
AI & CV	OpenAI API, OpenRouter, Exa AI, OpenCV, EasyOCR, Random Forest, OCR Pipelines, Image Processing	Cloud	AWS (EC2, RDS, S3, Cognito), DigitalOcean, cPanel, Supabase Edge Functions
GIS & Mapping	Leaflet, MapLibre GL, MBTiles, PostGIS, Spatial Databases, Offline Mapping, GPS Tracking	Frontend	React.js, Redux Toolkit, Vite, Tailwind CSS, Bootstrap, HTML5, CSS3
Backend	Node.js, Express.js, REST APIs, WebSockets, Socket.IO, PostgreSQL LISTEN/NOTIFY	Auth & Security	JWT, OAuth, AWS Cognito, RBAC, PostgreSQL RLS, Supabase Auth
Databases	PostgreSQL, PostGIS, Prisma ORM, Supabase, MongoDB, Stored	Automation	Apify, Apollo.io, Prospeo, Brevo (SMTP), Nodemailer, Mailchimp, Twilio
		Tools	Git, GitHub, Postman, VS Code, Docker (basic), Swagger

Hackathon

GNEC Hackathon 2025 | AquaGuard — AI Water Quality Monitoring

Team of 3

- Developed an AI-assisted water quality monitoring platform supporting **UN SDG 1 and SDG 2**; responsible for backend API development, AWS EC2 deployment, AWS Cognito authentication, Amazon S3 integration, and PostgreSQL database design on AWS RDS.

Awards & Activities

- **Certificate of Appreciation** — Waseela-e-Awal
- **Women Techmakers Volunteer Recognition** — DevFest Sindh 2023
- **Debate Competition Participant**
- **National Spelling Bee Participant**
- **Drawing Examination Certificate**
- **Sports** — Volleyball

Certifications

- **AWS Certified Cloud Practitioner** (CLF-C02) — Amazon Web Services
- **NAVTC Cloud Computing**
- **Microsoft Learn Student Ambassador** — Alpha & Beta
- **Google Developer Student Club Developer**
- **Web Development Bootcamp** — Delta Tech Info (DTI)

Leadership & Community

- **Microsoft Learn Student Ambassador** (Alpha & Beta)
- **Google Developer Student Club Developer**
- **Team Lead** — Four-intern development team, CSSAwards Project (under senior engineering supervision)
- **Volunteer** — Women Techmakers DevFest Sindh 2023
- **Volunteer** — MISMO National Mathematics Olympiad

Languages

- **English** — Professional Working Proficiency
- **Urdu** — Native / Full Professional Proficiency
- **Sindhi** — Native Proficiency