

Zubair Ahmed

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SUMMARY

Systems-focused CS undergrad with hands-on experience in database management, application development & game engine/simulator programming. Proficient across high & low-level code to build efficient solutions. Actively seeking a role that integrates practical software development with research in foundational technologies.

SKILLS

Languages: JavaScript/TypeScript, C/C++, C#, R, Python, Java, Bash/Shell, Assembly(x86), Go

Frameworks/Libraries: (Database) SQL, MongoDB, NoSQL, PostgreSQL, MySQL; (Data Analytics) R, dplyr, tidyr, ggplot2; (Frontend) HTML, jQuery, CSS, TailwindCSS; (Backend) PHP; (ML) Python, Pandas, Numpy, Scikit-Learn; (Low-Level) Irvine32; (Infrastructure) Linux, Git

Technical Skills: Object-Oriented Programming, Functional Programming, Data Structures, System/App Design, Algorithm Design, AI/ML

Other Skills: General & Assessment Management, LaTeX

EDUCATION

Bachelor of Science in Computer Science

Sep 2023 – Jun 2027

National University of Computer and Emerging Sciences (FAST-NUCES), Karachi

Secondary Education IGCSE A Levels, Mathematics & CS

Oct 2022 – Jun 2023

Cedar College, Karachi

Primary Education IGCSE O Levels, General Studies

May 2019 – Jun 2020

Montessori Complex Cambridge School (MCCS), Karachi

Score: 2A*, 5A

EXPERIENCE

Software Developer – Tech Startup

Jan 2026 – Present

App Design, Relational Database Management, Web Engineering

Full-Stack Development Intern – HUM Network Ltd

June 2025 – July 2025

Database Design, Front/Back-End Technologies, APIs

- Built responsive full-stack websites with interactive UIs, CRUD functionality, & relational database schemas.
- Implemented authorized user access via session-based authentication, ensuring controlled application entry.
- Designed RESTful APIs to enable data exchange across various systems.

Undergraduate Teaching Assistant – FAST-NUCES

Feb 2025 – Present

Teaching, Mentoring & Grading

- *CS-2009 Design & Analysis of Algorithms, EE-3009 Computer Architecture, MT-1008 Multivariate Calculus, SS-1013 Ideology & Constitution of Pakistan*

PROJECTS

CL1002 Inventory Processing System ([Link](#))

Dec 2023

C, File Handling, Console UI, Windows API

- Console-based system with user authentication, product/transaction management, and file persistence for data storage (threshold alerts for stock levels)
- Interactive Windows API menus with color-coding/system sounds, multi-criteria search (ID/category), bulk operations, and automated reports

CL1004 Tetris Game Engine ([Link](#))

Apr 2024

C++, Raylib, Object Oriented Programming, Polymorphism, File I/O Manipulation, Game Development

- OOP-designed engine with 7 block types via inheritance, polymorphic difficulty & dynamic grid scaling, & dynamic grid management
- Raylib-powered UI with real-time scoring/next-block previews + persistent high-score storage via binary file I/O

EL2003 Library Management System ([Link](#))

Oct 2024

Assembly (x86), Irvine32, Low-Level Programming, System Design, Data Management

- Role-based access (librarian/customer) with real-time inventory via arrays/bitwise flags + student ID validation
- Optimized memory management for O(n) searches + text-based UI with animated menus using Irvine32 libraries

CS2001 Automated Ticket Management System ([Link](#))

Nov 2024

C++, Data Structures, Sorting Algorithms, Multithreading, Configuration Management

- Data management system using AVL trees for range queries ($O(\log n)$) & hash tables for $O(1)$ ID/name lookups
- Implemented adaptive sorting (5 algorithms) with dynamic threshold-based selection (configurable via file)
- Thread-safe priority queues (Mutex-Protected Heaps) for pending tickets and resolution stacks with automated time tracking

CS3005 Sudoku Turing Machine Simulator ([Link](#))

Apr 2025

JavaScript, Turing Machines, Algorithm Design, Backtracking, UI/UX

- Multi-tape Turing machine simulator with backtracking to solve Sudoku puzzles
- Interactive UI with real-time tape/grid visualization + adjustable speed/step controls for algorithmic demonstration

CS2006 Multi-User Document Editor ([Link](#))

Apr 2025

C, Linux System Programming, IPC, File Locking, Semaphores, Ncurses

- Engineered a synchronized multi-user document editor using POSIX file locking and advisory locks
- Implemented IPC via semaphores and shared memory for real-time priority-based user coordination
- Developed a document versioning system with snapshot history and rollback functionality
- Built role-based access control with owner preemption and graceful editor termination

CS3001 Microservices Network Manager ([Link](#))

Jun 2025

Python, FastAPI, WebSocket, REST APIs, Load Balancing, Process Management

- API Gateway with 3 REST services implementing load balancing, circuit breaking, & health monitoring
- Real-time WebSocket ChatOps dashboard supporting role-based commands and bidirectional communication
- Dynamic service lifecycle management using Python subprocesses with failure simulation capabilities
- Comprehensive frontend dashboard with service status visualization and interactive network controls

CS2005 DBMS Car Warehousing Management System ([Link](#))

Dec 2025

PHP, MySQL, HTML/CSS, JavaScript, Bootstrap, AJAX, Database Design, CRUD Operations

- Database Architecture: Designed 10+ normalized tables with advanced features like mutual brand affiliations and manufacturer financial tracking
- Full-Stack Development: Built responsive CRUD interfaces with user authentication, image management, and inventory tracking using PHP/MySQL/Bootstrap
- Database Optimization: Implemented triggers for automated trending status, indexes for performance, and constraints for data integrity and stock validation

OTHERS

EL1005 Arduino Integrated Calculator ([Link](#))

Mar 2024

Arduino Uno, Embedded Systems, Digital Logic, Hardware Based

- Hardware-based calculator using Arduino Uno with 4x4 keypad input and 16x2 LCD output, built on breadboard with jumper wiring and a 10k potentiometer for contrast control
- Demonstrated embedded system design through signal processing, button-state management, and arithmetic logic implementation