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Zulkefal Z

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ABOUT ME

Passionate Blockchain Researcher and Developer with a strong foundation in secure, efficient, and scalable smart contract design for EVM-compatible networks. Actively engaged in Cyfrin's CodeHawks audit community, contributing to open-source security reviews and real-world contract analyses. Committed to advancing decentralized systems through research-driven innovation and sustainable Web3 infrastructure aligned with academic excellence and scientific rigor.

WORK EXPERIENCE

QUECKO INC – ISLAMABAD, PAKISTAN

BLOCKCHAIN DEVELOPER – 01/09/2024 – CURRENT

- Developed smart contracts using **Solidity** for various decentralized applications.
- Deployed contracts across multiple **EVM-compatible blockchains.**
- Integrated **Uniswap** for on-chain token swapping and liquidity operations.
- Implemented **ECDSA** signatures and **Merkle Proofs** for secure user whitelisting and validation.
- Built cross-chain functionalities to **bridge tokens between different blockchains.**

EDUCATION AND TRAINING

15/09/2020 – 15/06/2024 Kamra, Pakistan

BACHELORS IN COMPUTER SCIENCE Air University Aerospace and Aviation Campus Kamra

Relevant Courses:
Programming Fundamentals; Object-Oriented Programming; Data Structures and Algorithms; Operating Systems; Database Systems; Computer Networks; Software Engineering; Parallel and Distributed Computing; Information Security; Full Stack Web Development; Semantic Web; Compiler Construction; Discrete Structures; Linear Algebra.

Address Main Attock New GT-Road Hattian Aviation City (FHS) Kamra Attock, 43560, Kamra, Pakistan |

Website https://aack.au.edu.pk/ | **Field of study** Information and Communication Technologies | **Final grade** 3.47 / 4 |

Level in EQF EQF level 6 | **National classification** Level 6 | **Type of credits** Credit Hours | **Number of credits** 135 |

Thesis NFT Based Degree Issuance and Verification System

PROJECTS

13/06/2025 – 25/06/2025

WormHole Token Bridge (Cross-Chain Token Bridging)

- Developed a cross-chain ERC20 token bridge using **Solidity** and the **Wormhole protocol** to enable secure transfers between Ethereum, Base, and Arbitrum.
- Implemented **CrossChainSender** and **CrossChainReceiver** smart contracts for message relaying and token distribution.
- Utilized **Foundry** for contract testing, deployment scripting, and environment setup with RPC endpoints and API keys.
- Solely responsible for architecture, smart contract development, and deployment across multiple blockchain networks.

Link https://github.com/zulkefal/WormHole-Token-Bridge/

01/07/2024 – 01/08/2024

Ticketing App (NFT-Based Event Access)

- Designed and developed a full-stack web application enabling event organizers to mint NFT-based tickets for users.
- Implemented secure NFT minting logic using Solidity, allowing only verified organizers to create event tickets.
- Built a responsive front-end with React.js for ticket management and event access verification.
- Solely responsible for end-to-end development, including smart contract design, backend integration, and UI implementation.

Link https://github.com/zulkefal/mernNFTApp

01/02/2023 – 15/06/2024

NFT Based Degree Issuance and Verification System

- Developed a blockchain-based framework where **universities and HEC issue degrees as NFTs.**
- Ensured that NFT degrees are **pre-verified by HEC** and can be **authenticated instantly**, eliminating manual verification.
- Improved efficiency by reducing time and costs for students while addressing the issue of counterfeit degrees.
- Highlighted benefits for recruiters, the Federal Education Ministry, and the education sector by providing **secure, transparent, and rapid verification**.

Link https://github.com/zulkefal/PK-Cert-F

01/12/2023 – 23/12/2023

Smart Attendance (Image Recognition System)

- Developed an automated student attendance system using **image recognition** to replace traditional paper-based methods.]
- Implemented **face detection and recognition** with **EMGU CV** and **Haar Cascade** algorithms for accurate real-time identification.
- Integrated with **Microsoft SQL Server** to store and manage attendance records securely.
- Reduced manual effort and eliminated proxy attendance while promoting an eco-friendly, paperless process.

Link https://github.com/zulkefal/SmartAttendance

05/10/2023 – 10/10/2023

Research Scraper (Academic Data Extraction Tool)

- Designed and developed a Python-based desktop application for automated **scraping of research papers** from ACM Digital Library and Google Scholar.
- Built a user-friendly GUI using **Tkinter**, allowing users to input search queries, select data sources, and export results as CSV files.
- Implemented web scraping logic with **BeautifulSoup** and Requests to extract titles, abstracts, authors, citations, and publication links.
- Solely responsible for complete development from UI design to backend scraping logic and data export.

Link https://github.com/zulkefal/researchScrapper

VOLUNTEERING

02/08/2024 – CURRENT

Smart Contract Audits (Cyfrin CodeHawks Competitions)

Actively participate in multiple smart contract audit contests hosted by **Cyfrin's CodeHawks**, analyzing production-grade Solidity codebases for security vulnerabilities.

- **Dating App Audit** — Identified **four valid vulnerabilities** affecting contract state integrity and authorization logic; submitted **comprehensive technical reports** with mitigation strategies adopted by project maintainers.
- **Christmas Dinner Audit** — Detected a **critical flaw in contract logic** that exposed potential re-entrancy and data-validation issues; proposed optimized control-flow patterns and validation checks to enhance protocol security and gas efficiency.

20/09/2025 – 24/10/2025

Slotchain (BaseChain Hackathon)

- Built an online booking app where users can schedule sessions with consultants.
- Created a smart contract to handle payments and issue an NFT for each booked slot.

- Added digital proof of bookings and stored records securely using IPFS.
- Enabled NFT-based access to scheduled meetings.

Link https://slotchain-app.vercel.app/

01/10/2023 – 15/06/2024 Pakistan

President – Air University Freelancing Society (AUFS)

- Started and built a student community focused on freelancing at Air University.
- Created a platform where students could **learn, share knowledge, and connect** with others interested in freelancing.
- Managed the society's growth, activities, and events to help members improve their skills.
- Encouraged teamwork and learning, helping students prepare for **successful freelancing careers**.

01/08/2022 – 15/08/2023 Kamra, Pakistan

Technical Team Member (Google Developer Students Club)

Contributed to organizing and managing technical events and workshops within the university as part of the GDSC technical team. Assisted in event planning, technical setup, and knowledge-sharing sessions to promote learning and innovation in software development.

PUBLICATIONS

2025

A Blockchain-Based Framework for Issuance and Verification of Degrees as Non-Fungible Tokens (Under Review)

Proposed a blockchain framework for issuing and verifying academic degrees as NFTs to eliminate manual verification by the Higher Education Commission (HEC). The system ensures tamper-proof, transparent, and instantly verifiable academic records, reducing administrative costs and preventing counterfeit degrees.

Link https://www.overleaf.com/read/rbbnmpwgnndx#a1bd5b

HONOURS AND AWARDS

08/10/2022

Business Idea Winner – Air University Aerospace and Aviation Campus Kamra

Proposed and presented a blockchain-based framework for managing university financial operations, focusing on transparency and automation. Awarded 1st position for demonstrating innovation and real-world feasibility.

21/09/2022

Academic Excellence – Air University Aerospace and Aviation Campus Kamra

Awarded Air University Kamra Merit Scholarship twice for securing 2nd position during Bachelor's program.

SKILLS

Solidity | Foundry | Uniswap | WormHole | LayerZero | GIT | Communication | Critical Thinking | Problem Solving | securities | Blockchain Architecture | Cryptography | Academic Writing | Latex

LANGUAGE SKILLS

Mother tongue(s): **URDU**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	B2	B2	B2	B2	B2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

CERTIFICATIONS

IBM, 01/04/2022

Blockchain Essentials

A foundational course covering basic blockchain theory, concepts, and applications, including distributed ledgers, transactions, and smart contracts.

Mode of learning: Online

Link https://courses.cognitiveclass.ai/certificates/4fb1518c26d84a97b1ad32961ad61bd7

Coursera, 21/08/2022

Blockchain Basics

Gained a foundational understanding of blockchain technology, including Bitcoin and Ethereum protocols. Learned to create and manage Ethereum nodes, mine and transfer Ether, and apply cryptographic concepts to build and test blockchain networks.

Mode of learning: Online

Link https://www.coursera.org/verify/GNVY35MQ7GFN

Coursera, 13/02/2023

Smart Contracts

Learned to design, code, and deploy smart contracts using Solidity and Remix IDE, applying best practices for building secure and efficient blockchain-based applications.

Mode of learning: Online

Link https://www.coursera.org/verify/WWV9X448KFLU

Coursera, 31/07/2023

Decentralized Applications (Dapps)

Learned to design and develop end-to-end decentralized applications (DApps) using Truffle, smart contracts, and MetaMask, focusing on DApp architecture, test-driven development, and integration of blockchain back-end with front-end clients.

Mode of learning: Online

Link https://www.coursera.org/verify/PD58DQ9J4AWH

SOCIAL AND POLITICAL ACTIVITIES

01/04/2022 – CURRENT

Regular Blood Donor

Actively participate in blood donation drives to support community health initiatives.

15/09/2022 – 15/06/2024

Class Representative

Elected Class Representative for two consecutive years; represented student interests, facilitated communication between faculty and peers, and organized various class events and educational trips.

01/02/2018 – 15/06/2024

Environmental Campaign Participant

Participated in multiple environmental awareness and cleanup campaigns promoting sustainability during college and university years.