

# Usman Ghani Bawani

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## EDUCATION

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**University College London (UCL)** **London, United Kingdom**  
*MSc Emerging Digital Technologies / Programme Representative* *Sep 2025 – Aug 2026*  
*Focus: Blockchain Technologies / Bioinformatics(audit) / Open-Endedness & General Intelligence(audit)*

**Institute of Business Administration (IBA)** **Karachi, Pakistan**  
*BSc Computer Science / CGPA 3.57 / Dean's Honor List* *Aug 2020 – Jul 2024*

## RESEARCH

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### *Published*

- **K. Zahoor, N. Z. Bawany and U. Ghani**, “Explainable AI for Healthcare: An Approach Towards Interpretable Healthcare Models,” *24th Int. Arab Conf. on Information Technology (ACIT)*, UAE, 2023. DOI: 10.1109/ACIT58888.2023.10453740.
- **K. Zahoor and U. Ghani**, “Robust Deep Learning Model for Adversarial Defense in Medical Image Diagnosis,” *2nd Int. Conf. on Emerging Technologies in Electronics, Computing and Communication (ICETECC)*, Pakistan, 2025.

### *Under Review*

- **U. Ghani and K. Liu**, “Unified Logical Liquidity (ULL): A Deterministic Block-Synchronous Pricing Protocol for Fragmented Decentralized Exchange Reserves,” *submitted to conference, 2026*.

### *Working Paper*

- **U. Ghani**, “Crowding Dynamics in Large-Cap US Equities: A Residual Multi-Factor Consensus Approach to Measuring Algorithmic Reflexivity, 2000–2024,”

## PROJECTS

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- **Zero-Knowledge Wallet Verifier**: Built a Solidity + JavaScript prototype proving token ownership without revealing wallet details using zk-SNARKs (Groth16). Demonstrates privacy-preserving identity and balance verification integrable with existing ECDSA infrastructure.
- **AI Reflexivity in US Equities (RMFC)**: Built an ex-ante crowding measure on 153 JKP factors across 3,669 US stocks, testing whether independently-trained ML models converge on the same signals; finds Granger-causal evidence ( $p=0.037$ ) of an AI-driven reflexivity loop.
- **UCL Racing Rocket - Flight Computer Avionics (IREC 2026)**: Implemented avionics on STM32 using 6-state FSM with OR-gated apogee detection, interrupt-driven IMU pipeline, EMA filters for altitude/velocity, gyro-accelerometer filter, and median voting for fault-tolerance.
- **G.U.A.R.D. Autonomous Drone - Top 6**: Engineered an autonomous custom-built drone using Pixhawk and leveraging ROS, using QGroundControl for navigation, and Computer Vision for real-time human distress detection in disasters zones.
- **Credit Risk Stratification**: Investigated the interpretability-accuracy trade-off in credit default (45K loans) by benchmarking linear, ensemble, and neural architectures under asymmetric loss (LGD vs. CLV), framing model selection around Basel II/III explainability constraints.
- **Blockchain Voting System**: Dual-token governance on permissioned Ethereum: Soul Bound Tokens (ERC-721) cryptographically bind identity to wallet, making delegation impossible; Campus Participation Tokens (ERC-20) create a verifiable on-chain engagement and incentive ledger.
- **Yoga Pose Classification**: Decoupled pose estimation from classification. MoveNet extracts 17-keypoint spatial embeddings per frame; a custom neural network trained on the keypoint feature space rather than raw pixels achieves higher accuracy at significantly lower compute cost.

## WORK EXPERIENCE

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**Foresio** | Co-Founder **London, United Kingdom**  
*AI automation startup* *Mar 2026 – Present*

- Building voice agents that autonomously handle inbound calls and appointment scheduling for service SMEs (locksmiths, dental practices, law firms); also developing broader business process automations.

**ZM Converters** | Business Development Executive **Karachi, Pakistan**  
*Flexible packaging manufacturer* *Jun 2023 – Feb 2026*

- Spearheaded debut exhibition generating **150+** B2B leads and **USD 250K+** in contracts.
- Built ERP (.NET/SQL Server) and Power BI dashboards and reducing data-entry errors **40%**.
- Built an SEO-optimised website (PHP), increasing site traffic by **3x** and inbound inquiries by **210%**.

**Sadiq.ai** | Frontend Developer Intern **Karachi, Pakistan**  
*Game-based onboarding platform (Pureversity)* *May 2023 – Jul 2023*

- Developed a gamified onboarding platform using Next.js, improving load time by **30%** and UX.

**DIC Pakistan** | Business Analyst Intern **Karachi, Pakistan**  
*Multinational ink and specialty materials manufacturer* *Jul 2021 – Aug 2021*

- Analysed workflows via Kaizen, identifying inefficiencies and proposing targeted improvements.

## ACHIEVEMENTS & AWARDS

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- **Bloomberg–FCA Trading League at UCL**: Ranked **#1 in RL P&L** across the league.
- **Blockchain Technologies**: Top 5; Report highlighted by UCL Centre for Blockchain Technologies.
- **ICPC Regional Finalist** (2022 & 2023): International Collegiate Programming Competition, GIKI
- **UCL BaseKX Explore Programme**: 6-week flagship venture-building programme (Fall 2026).
- **Programme Representative**: MSc Emerging Digital Technologies, UCL (2025–2026).
- **NVIDIA Certificate**: Fundamentals of Accelerated Computing with CUDA Python (2023).
- **Diploma in Taxation**: 6-month programme, income, sales and corporate tax, IBA Karachi (2022).
- **CEO**, IBA Iqra Society (2023–2024); **Thematic Lead**, Green Youth Movement (2023–2024).

## LEADERSHIP & SOCIAL IMPACT

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**Uplift Pakistan** | Founder Jun 2020 – Present

- Welfare NGO supporting **5,000+** individuals through monthly food drives and plantation campaigns
- Empowered **50+** women through entrepreneurial skill-building, fostering financial independence.

**Dar ul Sukoon** | Volunteer

- Volunteered for community service, a shelter supporting children with mental disabilities.

## SKILLS

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**ML & AI**: Neural Network Architecture (PyTorch, TensorFlow), Transfer Learning, Computer Vision, Statistical Modelling & Causality Testing, Feature Engineering, GPU Computing (CUDA), Python

**Blockchain & Cryptography**: Smart Contract Engineering (Solidity), Zero-Knowledge Proofs (zk-SNARKs/Groth16), DeFi Protocol Design, Token Economics (ERC-20/ERC-721),

**Embedded & Systems**: Real-time Firmware (STM32, C/C++), Sensor Fusion, Autonomous Navigation (ROS, Pixhawk), Cloud Infrastructure (AWS, Terraform, Docker), Git

**Software & Data**: Full-Stack Development (MERN, Next.js, JavaScript), ERP Systems (.NET, SQL Server), Business Intelligence (Power BI), Java, SEO

## INTERESTS

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Evolutionary Biology | Theology | Urdu Poetry | Hiking | Travel | Philosophy of Mind | Free Will