Shawal Khalid

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SUMMARY

Ph.D. student specializing in Computer Science, dedicated researcher with a keen interest in Software engineering, Generative AI & Blockchain. Proven ability to independently propose, develop, and evaluate innovative solutions.

Areas of interests: Software engineering, Generative AI, Machine learning, Human Computer Interaction, Blockchain technologies.

Publications: First author, Paper titled "Software Engineering Approaches Adopted By Blockchain Developers" SDS'23 ⊘

EDUCATION

Doctor of Science in Computer Science ⊘ — 01/2022 – present, Virginia Tech Blacksburg, VA, USA
- CGPA: [4.0/4.0] **Coursework:** Blockchain Technology, Software Engineering, Web Application development, Operating systems, Urban Computing, Usability Engineering, Data Analytics, Human Computer Interaction

Bachelor of Science in Computer Science ⊘ — 01/2018 – 01/2022, Comsats University Islamabad, Pakistan
- Merit based scholarship Awardee, **Coursework:** Artificial intelligence, Algorithm and data structures, Data base, Object-Oriented Programming, Visual Programming, Computer Architecture, Human Computer Interaction, Machine learning, Assembly language, Theory of Automata

Exchange Semester ⊘ — 01/2020 – 05/2020, Murray State Uni, KY, United States
- Selected in more than **15000 applicants** from all over Pakistan, On Dean's list for Spring 2020, Fully Funded UGRAD program by the U.S. department of States

PROFESSIONAL EXPERIENCE

Instructor of Record — 01/2024 – 05/2024, Virginia Tech Blacksburg, VA, United States
- Serving as the **primary instructor** of record for CS 3704. Developed and delivered course materials, including lectures, assignments, and assessments. Provided guidance and mentorship to students, fostering a collaborative and engaging learning environment. Evaluated student performance through grading assignments, exams, and participation. Collaborated with faculty and staff to enhance curriculum and student learning outcomes.

Graduate Research Assistant — 05/2022 – present, Virginia Tech. Blacksburg, VA
Benefits: Full tuition Fee Waiver
- **Development of smart contracts** utilizing large language models to automate contract generation processes.
- Understanding how Crypto influencers can impact developers behaviour on Github activities & doing statistical analysis of results.

Blockchain Developer & Research Analyst — 01/2021 – 12/2021, Block Ventors Lahore, Pakistan
- Understood & implemented Consensus Algorithms in Hyperledger Fabric. Architected, developed and deployed a research based project to a decentralized web based application for Pharmaceutical supply chain.
- Used CouchDB database, critical thinking to break down problems, evaluate solutions and make decisions.

Graduate Teaching Assistant — 01/2022 – present, Virginia Tech Blacksburg, VA
- Course titled 'Principles Computer Security', an undergraduate level course for over 110 students, planning assignments, proctoring tests, attending classes & helping students figure out problems with their code.
- TA for 'Intro to Java' course, utilized WebCAT platform to facilitate grading & feedback, developed course content & assessments in collaboration with faculty, ensuring alignment with learning objectives.

Software Developer Intern — 05/2019 – 08/2019, IT Park ATD, Pakistan
- Monitored errors sent by defects team under direction of development team, Utilized agile development.
- Tested the entire development of the application and integrated with web services.

RELEVANT PROJECTS

AI-Generated Concept Exercises Evaluation — 08/2023 – present
- Implemented AI algorithms (ChatGPT) for personalized exercise creation, Designed methodology for comparing AI exercises with traditional counterparts.
- Anticipate improved academic performance and enhanced learning experiences.

Remote Assistant Bot - Helps onboard new SDE ⊘ — 01/2022 – 05/2022
- Multimodal Experiences Research Project - Implemented AI-driven solutions for enhancing remote collaboration using GCP, Investigated innovative features like FAQ analytics, meeting scheduler, and reverse search.

Decentralized Identity Management ⊘ — 01/2023 – 05/2023
- Implemented Self-Sovereign Identity (SSI) principles, Explored Zero-knowledge Proof (ZKP) for enhanced security, Conducted literature review on decentralized identity applications.

Omniscient Debugger ⊘ — 08/2022 – 12/2022
- Knows as Time Travel Debugging or Reverse Debugging allows programmers to step back
- User can debug their code using tracer that use PTrace to manipulate tracee's registers, stack & instructions

SKILLS

- Proficient in Python, Java, C++, Ruby, and experienced in AI frameworks like PyTorch and TensorFlow. Skilled in creating demos, prototypes, and developing multimodal deep learning architectures.
- Expertise in generative AI, deep learning - Skilled in creating demos, prototypes, and developing multimodal deep learning architectures

CERTIFICATES

U.S. Department of States, GLOBAL Ugrad Semester Exchange Program
Completed study abroad program, demonstrating adaptability and cross-cultural collaboration.

George Mason University, Leadership Engagement & Action Plan
Various Tasks assigned through the IREX Learning platform.

Badges by The U.S. Department of States
Recognized for Leading MySelf, Leading A Team and Leading A Community through successful completion of the assigned tasks on LEAP.