

# Shawal Khalid

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## EDUCATION

### Doctor of Science in Computer Science & Applications

Virginia Polytechnic Institute and State University ✉

Present  
Blacksburg, VA

**Research Focus:** Blockchain-Oriented Software Engineering (BOSE); development of AI-powered tools for secure smart contract systems; emphasis on multi-agent LLM frameworks for vulnerability detection & verification.

### Master of Science in Computer Science & Applications

Virginia Polytechnic Institute and State University

05/2024  
Blacksburg, VA

### Bachelor of Science in Computer Science

Merit based scholarship Awardee - Comsats University Islamabad ✉

01/2022  
Islamabad

### Exchange Semester, Study Abroad Program

Dean's List (Spring 2020); Selected from 15,000+ applicants- Murray State University ✉

05/2020  
Murray, KY

## SKILLS

Proficient in Python (PyTorch, TensorFlow) and C++; experienced with transformers and foundation-model fine-tuning, on-device/edge optimization for LLMs/VLMs (quantization, pruning, knowledge distillation), evaluation/benchmarking and latency/throughput profiling on resource-constrained devices; TorchScript and ONNX (export/ONNX Runtime) for deployment, shell scripting, and reproducible experimentation; additional experience with AWS, Google Cloud, distributed computing, SQL/NoSQL, microservices, React, Django, REST APIs, and Git.

## WORK EXPERIENCE

### React Native Developer Intern ✉

- Built a cross-platform web3 mobile dApp using React Native, focusing on dynamic UI/UX and seamless user interactions, Integrated web3 authentication with ethers.js for secure blockchain connectivity and decentralized identity management, Connected the app to backend databases via RESTful APIs, ensuring efficient data handling and storage.
- Collaborated in an agile environment using Git and CI/CD pipelines for development and deployment.

01/2025 – 05/2025

XNET Mobile Inc, CA,  
United States

### Graduate Research Assistant

Benefits: Full tuition Fee Waiver

05/2022 – present

Virginia Tech.  
Blacksburg, VA

- Benchmarking Study on Smart Contract Auditing Tools –Empirical evaluation of industry tools (Slither, Mythril, FTSmartAudit, Smart-LLaMA, etc.) against the **SmartBugs Curated dataset** (140+ contracts). Designing pipeline to compute precision, recall, and F1 scores with **fuzzy line matching and standardized output normalization**.

### Blockchain Developer & Research Analyst

- 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.

01/2021 – 12/2021

Block Ventors Lahore,  
Pakistan

### Instructor of Record

- 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.

01/2024 – 05/2024

Virginia Tech  
Blacksburg, VA,  
United States

### Software Developer Intern

- 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.

05/2019 – 08/2019

IT Park ATD, Pakistan

### Web developer Intern

- Developed e-commerce based Pet market website using HTML, CSS, JavaScript. Troubleshoot and debugged code ensuring compatibility with devices, browsers and operating systems with timely updates.

05/2021 – 08/2021

Codematics Inc  
Abbottabad, Pakistan

## RELEVANT PROJECTS

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<b>Xnet-go Decentralized Mobile Network</b>	• Developing a cross-platform mobile dApp using <b>React Native</b> , integrating <b>web3 authentication</b> with <b>ethers.js</b> • Designed dynamic <b>UI/UX</b> components and implemented <b>Redux</b> for efficient state management & timely updates. • Integrated <b>RESTful APIs</b> for backend communication & optimized app performance through <b>Jest</b> & <b>Detox</b> testing.	01/2025 – present
<b>AI-Generated Concept Exercises Evaluation</b>	• 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.	08/2023 – present
<b>Remote Assistant Bot - Helps onboard new SDE</b>	• 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.	01/2022 – 05/2022
<b>Decentralized Identity Management</b>	• Implemented Self-Sovereign Identity (SSI) principles, Explored Zero-knowledge Proof (ZKP) for enhanced security, Conducted literature review on decentralized identity applications.	01/2023 – 05/2023
<b>Omniscient Debugger</b>	• 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	08/2022 – 12/2022
<b>Predicting NYC Taxi trip duration-Urban computing problem</b>	• Implemented XGBoost model for predicting duration by merging dataset of trip, weather & OSRM data from google maps, used heatmap to check relation b/w several parameters, used K-fold cross validation.	08/2022 – 12/2022

## AWARDS

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<b>Instructor of Record, Virginia Tech</b>	• Best Instructor of the year 2024, presented at the Annual CS Award Ceremony	28/04/2024
<b>Badges from The U.S. Department of States, IREX</b>	• Leading Myself, Leading A Team, Leading A Community	06/2020

## PUBLICATIONS

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<b>Addressing the Agony of Recruitment for Human-centric Computing Studies</b>	• Presented at ACM Special Interest Group on Software Engineering (SIGSOFT) 2025	04/2025
<b>Evaluating Capabilities and Perspectives of Generative AI Tools in Smart Contract Development</b>	• Presented at The ACM International Symposium on Blockchain and Secure Critical Infrastructure (BSCI 2025)	03/2025
<b>Exploring Stakeholder Challenges in Recruitment for Human-Centric Computing</b>	• Presented at IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC) 2024, at Liverpool, United Kingdom.	09/2024
<b>A Comprehensive Approach to Supporting Blockchain Developers</b>	• Presented at IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC) 2024, at Liverpool, United Kingdom.	09/2024
<b>Exploring User Perceptions of Crypto Signals: An Empirical Study from Social Media</b>	• Presented at IEEE Cybermatics Congress 2024, held in Copenhagen, Denmark.	08/2024
<b>Software Engineering Approaches Adopted By Blockchain Developers</b>	• Presented at Software Defined Systems, SDS 2023 held at Texas A&M University, San Antonio, TX	09/2023
<b>Decoding the Influence: Analyzing the Impact of Crypto Signals on Software Repositories</b>	• Presented at IEEE International Conference on Software Analysis, Evolution, and Reengineering (SANER 2025), at Université de Montréal, Canada	