Umair Sarfraz

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Education

Master of Science, Information Security.   Fall 2018
Comsats University, Islamabad.

Bachelor of Science, Software Engineering.   Spring 2016
Comsats University, Islamabad.

Experience

Software Engineer   February 2018 - Present
IOTA Foundation, Berlin (Remote)

- Designed and developed a crypto-currency wallet for IOTA payments using React Native.
- Optimized the process of detecting new transactions on the network.
- Implemented node quorum for increasing the confidence level of responses from different public nodes in the network.
- Integrated (iOS and Android) native modules for hashing, proof-of-work and address generation.
- Implemented a tool for automatically rescuing blocked funds.
- Developed auto-promotion and reattachment setup of transactions for faster confirmations.
- Integrated RealmDB and automated the setup for securely migrating existing wallet's data from AsyncStorage to RealmDB.

Software Engineer   July 2016 - January 2018
Wanclouds Inc., Islamabad

- Designed and lead the development of a large ReactJS web application.
- Developed and maintained the development and test environments used by front end software engineers.
- Integrated the Jenkins Continuous Integration (CI) systems into the existing deployment processes.
- Provisioned and maintained Continuous Deployments (CD) over Kubernetes cluster using Ansible.
- Developed a test environment for end-to-end testing of a large web application backend using python.

Engineering Intern   October 2015 - May 2016
Inven Solutions, Rawalpindi

- Designed and developed a management software system for collaboration between for sports clubs using NodeJS/AngularJS.
- Developed mobile client applications for the management software using Ionic framework.

Technology Skills	*Programming Languages:* JavaScript, TypeScript, Python.
	Operations Technologies: DO/AWS/GCP/Azure Cloud Services, Docker, Kubernetes, Jenkins, Ansible, Vagrant.
	Web Backend Technologies: NodeJS, Express, Flask, Nginx, MongoDB, PostgreSQL, CassandraDB, MySQL, Redis, RabbitMQ.
	Web Frontend Technologies: ReactJS, Angular, Redux, Mocha, Jest, Enzyme, Bootstrap, SASS, Gulp, Webpack, Bower.
	Mobile Technologies: React Native, Ionic, RealmDB.
	Desktop Technologies: ElectronJS, Git.

Research Interests	Distributed systems
	Cloud security
	Software design patterns
	Data privacy
	Linux security
	Theology

Publications

A. Shahid, U. Sarfraz, M. W. Malik, M. S. Iftikhar, A. Jamal and N. Javaid, "Blockchain-based reputation system in agri-food supply chain," In International Conference on Advanced Information Networking and Applications, pp. 12-21. Springer, Cham, 2020.

U. Sarfraz, M. Alam, S. Zeadally, and A. Khan, "Privacy Aware IOTA Ledger: Decentralized Mixing and Unlinkable IOTA Transactions," Computer Networks, vol. 148, pp. 361-372, 2019.

S.M. Shuja, N. Javaid, S. Khan, U. Sarfraz, S. H. Ali, M. Taha, and T. Mehmood, "Electricity Price Prediction by Enhanced Combination of Autoregression Moving Average and Kernal Extreme Learing Machine," in *Advances in Intelligent Systems and Computing*, Springer, Cham, pp. 1145-1156, 2019.

U. Sarfraz, S. Zeadally, and M. Alam, "Outsourcing IOTA Proof-of-Work to Volunteer Public Devices," Security and Privacy, 2019.

Conference Presentations

U. Sarfraz, "DLT, IOTA and beyond," Higher Education Commission (HEC) Lecture Hall, Islamabad, 2017.

Additional Projects

ICarcerate: Software services for Lamar County Mississippi internal staff and prisoners management.
Tangle Archive: Tool for compiling historical data of the IOTA Tangle in CassandraDB.
Resocket: Web sockets wrapper and middleware for React-Redux applications.
SELinux MLS: Tool for automating SELinux configuration for Multi-Level Security (MLS) over Secure Shell (SSH).
Instagram Daemon: Daemon micro-service for generating a notification on slack for any activity on Instagram threads.

Tangle Explorer: Web explorer for transactions history of IOTA ledger.

Community Service   Active member of Pakistan Red Crescent Society (PRCS)

Extra-Curricular Activities

College basketball team, *Captain*	August 2010 - May 2011
University basketball team, *Captain*	September 2015 - June 2016
Association of Computing Machinery (ACM), *Member*	January 2016 - May 2016

Languages   Urdu, English, Punjabi

Referees   Available on request