

Muhammad Anas Imtiaz

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EDUCATION

Ph.D. in Computer Engineering

Expected: December, 2021

Boston University | Boston, MA

- Advisor: David Starobinski

B.Sc. in Electrical (Computer) Engineering

Spring, 2014

National University of Computer & Emerging Sciences | Lahore, Pakistan

- Advisor: Omer Saleem Bhatti

ACADEMIC RESEARCH AND PROJECTS

Doctoral Research Fellow

September, 2017 – present

Laboratory of Networking & Information Systems (NISLab), Boston University | Boston, MA

Project: Measuring and improving the performance of the Bitcoin network

Relevant publications: [C1], [C2], [A4], [A5]

- Investigated presence and impact of churn in the Bitcoin network
- Collected data from Bitcoin blockchain crawler showing 97% nodes experience churn; fitted best model to data; performed live measurements on Bitcoin network
- Showed that performance of current protocol degrades in presence of churn
- Designed, implemented, and evaluated a novel synchronization scheme to mitigate effects of churn
- Studied characteristics of orphan transactions in the Bitcoin network
- Measured network overhead incurred by a node in the network, configured with default parameters, due to orphan transactions
- Observed network overhead with a variation of parameter values and suggested a simple fix resulting in the least overhead

National University of Computer & Emerging Sciences | Lahore, Pakistan August, 2013 – August, 2014

Project: Handroid: A glove interface to sense hand gestures for sign language vocalization and control of robotic hand

Relevant publications: [A1], [A3]

- Constructed a glove interface to detect human motion when worn
- Designed specifically for deaf/mute people relying on sign language for communication
- Devised and effected an algorithm to convert sign language to audio and text
- Replicated human hand motion on a robotic hand through a machine-control system
- Won several competitions, awards and National ICT R&D fund
- Responsible for software programming and development
- Facilitated procurement of hardware, i.e., sensors, controllers, actuators
- Managed project finances to ensure satisfactory cost of project

PROFESSIONAL EXPERIENCE

Graduate Teaching Assistant

Fall, 2018 and Spring, 2019

Boston University | Boston, MA

- Assisted professors in course “Applied algorithms for engineers”
- Created and graded homework solutions
- Held discussion sessions and office hours
- Managed undergraduate teaching assistants
- Resolved administrative and student-related issues

Senior Software Development Engineer

August, 2016 – July, 2017

Mentor Graphics (now Siemens EDA) | Lahore, Pakistan

- Implemented development and testing of Microcontroller Abstraction Layer for the Input Capture Unit module under the AUTOSAR architecture
- Developed ICU's configurations and helped with configuration generator development and testing

Software Development Engineer

December, 2014 – July, 2016

Mentor Graphics (now Siemens EDA) | Lahore, Pakistan

- Developed several Mentor legacy network stacks including 'Volcano Target Package' and 'LIN Target Package'
- Upgraded and maintained CAN and LIN network protocol stacks
- Developed configuration generation tool and tests for CAN and LIN controller drivers for different microcontroller architectures
- Performed AUTOSAR Diagnostics over IP modules' test enhancement and development by identifying cases to increase code coverage
- Created several automation scripts for various tasks such as building tests, interacting with version control tools, and more using Windows BATCH, UNIX Shell and Python scripting languages
- Performed debugging with different tools such as Lauterbach, CubeSuite+, CodeWarrior, & more
- Provided customer support regarding service requests and maintenance

AWARDS AND HONORS

- *Best Paper Award*, IEEE ICBC'20
- *ACM SIG travel grant* to attend ACM IMC'19
- *ACM SIG travel grant* to attend in-person shadow PC meeting of ACM IMC'19
- Graduated *cum laude*, with a *silver medal* and appearance on the Dean's list throughout undergrad

PUBLICATIONS

Conferences

- [C2] Imtiaz, Muhammad Anas, et al. "Characterizing Orphan Transactions in the Bitcoin Network." *2020 IEEE International Conference on Blockchain and Cryptocurrency (ICBC)*, Toronto, Canada, 2020.
- [C1] Imtiaz, Muhammad Anas, et al. "Churn in the Bitcoin Network: Characterization and Impact." *2019 IEEE International Conference on Blockchain and Cryptocurrency (ICBC)*, Seoul, Korea (South), 2019.

Journals

- [A5] Imtiaz, Muhammad Anas, et al. "Investigating Orphan Transactions in the Bitcoin Network." *IEEE Transactions on Network and Service Management* 18.2 (2021): 1718-1731.
- [A4] Imtiaz, Muhammad Anas, et al. "Churn in the Bitcoin Network." *IEEE Transactions on Network and Service Management* 18.2 (2021): 1598-1615.
- [A3] Bhatti, Omer Saleem, et al. "Adaptive Collaborative Position Control of a Tendon-Driven Robotic Finger." *Journal of Control Engineering and Applied Informatics (CEAI)* 20.2 (2018): 87-99.
- [A2] Bhatti, Omer Saleem, et al. "Attitude control and stabilization of a two-wheeled self-balancing robot." *Journal of Control Engineering and Applied Informatics (CEAI)* 17.3 (2015): 98-104.
- [A1] Nisar, Osama, et al. "Performance Optimization of a Flex Sensor Based Glove for Hand Gestures Recognition and Translation." *International Journal of Engineering Research and Technology (IJERT)* 3.5 (2014).

Posters

- [P2] Imtiaz, Muhammad Anas, et al. "Churn in the Bitcoin Network." *5th New England Network and Systems (NENS) Day (NENS'19)*, Cambridge, MA, USA, 2019.
- [P1] Imtiaz, Muhammad Anas, et al. "Measuring Bitcoin's resilience to churn." *2018 ACM Internet Measurement Conference (IMC'18)*, Boston, MA, USA, 2018.

LEADERSHIP

Boston University ECE Graduate Student Association

February, 2020 – present

Boston University | Boston, MA

- Secretary and Web administrator
- Documented useful resources to help new students coming to Boston and the Boston University
- Helped organize various events including several Ph.D. town halls to facilitate communication between students and administration, and an alumni panel directed towards helping students apply for jobs after graduation

SKILLS

Programming: C/C++, Python, Matlab

Computer: MS-Office (Word, Excel, Powerpoint), Git, Windows, Unix

Language: English (*proficient*), Urdu (*proficient*), Punjabi (*good*)

ACADEMIC SERVICES

- Served as *TPC member* for the 3rd International Congress on Blockchain and Applications
- Served as *reviewer* for IEEE TNSM
- Served as *shadow PC* for ACM IMC'19

HOBBIES

- Travelling and photography [📷](#)
- Occasionally contribute to Math.StackExchange [📝](#)