

# 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

- 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

- 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

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- *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

## SELECTED PUBLICATIONS

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- Imtiaz, Muhammad Anas, et al. "Investigating Orphan Transactions in the Bitcoin Network." *IEEE Transactions on Network and Service Management* 18.2 (2021): 1718-1731.
- Imtiaz, Muhammad Anas, et al. "Churn in the Bitcoin Network." *IEEE Transactions on Network and Service Management* 18.2 (2021): 1598-1615.
- Imtiaz, Muhammad Anas, et al. "Characterizing Orphan Transactions in the Bitcoin Network." *2020 IEEE International Conference on Blockchain and Cryptocurrency (ICBC)*, Toronto, Canada, 2020.
- 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.

## LEADERSHIP

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**Boston University ECE Graduate Student Association** | Boston, MA February, 2020 – present

- Secretary and Web administrator
- 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

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*Programming:* C/C++, Python, Matlab

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

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

## ACADEMIC SERVICES

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

## HOBBIES

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