

# Md Ashiqur Rahman

PHD STUDENT IN NETWORKED SYSTEMS · UNIVERSITY OF ARIZONA

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## Skills

Computer Networks, Named Data Networking, routing in mobile ad-hoc networks, packet scheduling with network coding in RSU-based vehicular ad-hoc networks (V2I).

**Coding** C/C++, familiar with Scala, Python, Java

**Tools** Bash, Lucene, Vim, GDB, Docker, Jenkins, NS-3, CSIM

**Others** Natural language processing, DBMS, Information retrieval

## Education

### The University of Arizona

AZ, U.S.A

PHD CANDIDATE, COMPUTER SCIENCE (COURSEWORK GPA: 3.75) 2016 - 05/2021

### Khulna Univ. of Engineering & Technology (KUET) Bangladesh

B.Sc. IN COMPUTER SCIENCE AND ENGINEERING (GPA: 3.60) 2011 - 2015

## Experience

### Network Research Lab, The University of Arizona AZ, U.S.A

GRADUATE ASSOCIATE 2016 - Present

- Architectural differences between Named Data Networking (NDN) and IP in mobile ad-hoc networks. Routing in delay-tolerant and challenging networks using NDN.

### Computer Science, The University of Arizona AZ, U.S.A

GRADUATE ASSOCIATE 2016 - Present

- CSC 425 Computer Networks; CSC 452 Operating Systems; CSC 477/577 Introduction to Computer Vision.

### Computer Sc. & Engrg., Daffodil Intl. Univ. (DIU) Bangladesh

INSTRUCTOR 2015 - 2016

- Mentor: Competitive Programming (Beginner-Intermediate).
- Courses instructed: CSE 221 Algorithms; CSE 134 Data Structures.

### Computer Science and Engineering, KUET Bangladesh

LEAD UNDERGRADUATE RESEARCHER (WITH DR. G.G. NAWAZ ALI) 2014 - 2015

- Studying scheduling algorithms and applications of Network Coding in On-demand Vehicular Ad-hoc Networks.

### SGIPC (Special Group of Interest in Programming Contests), KUET Bangladesh

WORKSHOP MANAGER AND TRAINER 2012 - 2015

## Honors & Awards

- 2019 **2nd Runners-up**, 8th NDN Hackathon at UCLA, CA, USA
- 2018 **Winner**, 6th NDN Hackathon at FIU, FL, USA
- 2017 **Winner**, 4th NDN Hackathon at Univ. of Memphis, TN, USA
- 2014 **Winner**, Water Hackathon App Fest by WORLD BANK, BGD

## Relevant Coursework

GRADUATE 2016-Present

- Principles of Computer Networking, Database Systems and Implementation, Algorithms in NLP, Information Retrieval, Operating Systems.

UNDERGRADUATE 2011-2015

- Computer Networks, Machine Learning, Data Mining, Data Structures and Algorithms, Algorithm Analysis and Design, Data Communication.

## Publications

### Cooperative Cache Transfer-based On-demand Network Coded Broadcast in Vehicular Networks

ACM

ACM TRANSACTION ON EMBEDDED COMPUTING SYSTEMS

2019

- G. G. MD. Nawaz Ali; MD. Noor-A-Rahim; Md. Ashiqur Rahman; Beshah Ayalew; Peter H. J. Chong; Yong Liang Guan

### Efficient Real-time Coding-assisted Heterogeneous Data Access in Vehicular Network

IEEE

IEEE INTERNET OF THINGS JOURNAL

2018

- G. G. Md. Nawaz Ali; Md. Noor-A-Rahim; Md. Ashiqur Rahman; Syeda Khairunnesa Samantha; Peter Han Joo Chong; Yong Liang Guan

### Efficient coding based heterogeneous data access in vehicular networks

France

IEEE INTERNATIONAL CONFERENCE ON COMMUNICATIONS (ICC)

2017

- G. G. M. Nawaz Ali; Md. A. Rahman; S. K. Samantha; Yumeng Gao; Peter H.J. Chong; Y. L. Guan

### On Accessing Heterogeneous Data Items Using Network Coding in Wireless Broadcast

Canada

IEEE 84TH VEHICULAR TECHNOLOGY CONFERENCE (VTC-FALL)

2016

- Md. Ashiqur Rahman; G. G. Md. Nawaz Ali; Yumeng Gao; Syeda K. Samantha; Peter H. J. Chong

### On Scheduling Real-Time Multi-item Query with Network Coding in Multi-RSU VANETs

S. Korea

22ND IEEE RTCSA

2016

- Md. A. Rahman; G.G.M. Nawaz Ali; Peter H.J. Chong; S.K. Samantha; M.F. Muntasir; C. Chen

### On Efficient Data Dissemination Using Network Coding in Multi-RSU VANETs

China

IEEE 83RD VEHICULAR TECHNOLOGY CONFERENCE (VTC SPRING)

2016

- G. G. Md. Nawaz Ali; Md. Ashiqur Rahman; Peter Han Joo Chong; Syeda Khairunnesa Samantha

## Projects

### NFD: Named-Data Forwarding Daemon

STUDENT DEVELOPER (TOOLS: BOOSTC++, GERRIT, JENKINS)

2016-Present

- A network forwarder that evolves together with the NDN protocol (Site: <https://named-data.net/doc/NFD/current/>).

### Weighted Dropout: Supporting Multi-Level Annotations for Medical Literature on Patient, Interventions and Outcomes

UofA, AZ

CSC 585 ALGORITHMS IN NLP

Fall 2018

- Variable dropout-probability based on distance from tokens of interest.
- Maintains higher context information from all hot-word neighbors.
- Near-SotA performance with significantly lower model training time.
- Tools: Python, Tensorflow, Docker.

### Implementing components of MINIBASE in C

UofA, AZ

CSC 560 DATABASE SYSTEMS AND IMPLEMENTATIONS

Fall 2017

- Implemented Heapfile manager, Buffer manager, B+ tree in a DBMS.

### Building (a part of) Watson

UofA, AZ

CSC 583 TEXT RETRIEVAL & WEB SEARCH

Spring 2017

- An end-to-end Information Retrieval system that indexes a large set of Wikipedia pages to retrieve top relevant pages for short queries similar to the Jeopardy game.
- Tools: Scala, Apache Maven, Lucene.

### Implementing a Software Router in C

UofA, AZ

CSC 525 PRINCIPLES OF COMPUTER NETWORKING

Fall 2016

- A software router with ARP protocol, IP forwarding, and PWOSPF routing algorithm that can forward IP packets while reacting to link changes.