Ahmed Saeed (Ahmed Said Mohamed Tawfik Issa)

CONTACT INFORMATION	32 Vassar Street, 32-G930 Cambridge, MA 02139	asaeed@csail.mit.edu https://saeed.github.io

RESEARCH INTERESTS

Theory, design, and implementation of scalable **computer networks** and **computer systems**, including resource scheduling, congestion control, wireless networks, and cyber-physical systems.

EDUCATION

Georgia Institute of Technology, Atlanta, Georgia, USA

PhD in Computer Science — August 2019

- *Dissertation:* Scalable Network Scheduling in Software
- *Advisors:* Mostafa Ammar and Ellen W. Zegura

Georgia Institute of Technology, Atlanta, Georgia, USA

Master's of Science in Computer Science — May 2018

Alexandria University, Alexandria, Egypt

Bachelor's of Science, Computer and Systems Engineering — July 2010

RESEARCH EXPERIENCE

Massachusetts Institute of Technology, Cambridge, Massachusetts, USA

Postdoctoral Associate — Mentor: Mohammad Alizadeh — Sep. 2019 - now

Google Inc., Sunnyvale and Mountain View, CA, USA.

Student Researcher — Host: Nandita Dukkipati — Aug. 2018 - Dec. 2018
Software Engineering Intern — Host: Nandita Dukkipati — May 2018 - Aug. 2018
Software Engineering Intern — Host: Nandita Dukkipati — May 2016 - Jan. 2017

Carnegie Mellon University Qatar and **Qatar University**, Doha, Qatar.

Research Fellow — Mentors: Khaled Harras and Amr Mohammad — Nov. 2013 - July 2014

Egypt-Japan University for Science and Technology, Alexandria, Egypt

Research Assistant — Mentors: Moustafa Youssef and Khaled Harras — July 2010 - Aug. 2013

HONORS AND AWARDS

Google PhD Fellowship in Systems and Networking (2017-2019).

Third place in Student Research Competition (SRC) at MobiCom 2011.

Second place in undergraduate Student Research Competition (SRC) at MobiCom 2009.

Travel grants to attend: MobiSys'17, ICC'13, and PerCom'12.

CONFERENCE PUBLICATIONS

1. **Annulus: A Dual Congestion Control Loop for Datacenter and WAN Traffic Aggregates**
   ACM SIGCOMM 2020
   <u>Ahmed Saeed</u>, Varun Gupta, Prateesh Goyal, Milad Sharif, Rong Pan, Mostafa Ammar, Ellen Zegura, Keon Jang, Mohammad Alizadeh, Abdul Kabbani, Amin Vahdat

2. **Overload Control for μs-scale RPCs with Breakwater**
   USENIX OSDI 2020
   Inho Cho, <u>Ahmed Saeed</u>, Joshua Fried, Seo Jin Park, Mohammad Alizadeh, Adam Belay

3. **Eiffel: Efficient and Flexible Software Packet Scheduling**
   USENIX NSDI 2019
   <u>Ahmed Saeed</u>, Yimeng Zhao, Nandita Dukkipati, Ellen Zegura, Mostafa Ammar, Khaled Harras, Amin Vahdat

4. **zD: A Scalable Zero-Drop Network Stack at End Hosts**
   ACM CoNEXT2019
   Yimeng Zhao, <u>Ahmed Saeed</u>, Ellen Zegura , Mostafa Ammar

5. **Unison: Enabling Content Provider/ISP Collaboration using a vSwitch Abstraction**
   IEEE ICNP 2019
   Yimeng Zhao, _Ahmed Saeed_, Mostafa Ammar, Ellen Zegura

6. **Characterizing the Effects of Rapid LTE Deployment: A Data Driven Analysis**
   IEEE/IFIP TMA 2019
   Kareem Abdullah, Noha Othman Korany, Ayman Khalafallah, _Ahmed Saeed_, Ayman Gaber

7. **If you can't beat them, augment them: Improving Local WiFi with Only Above-driver Changes**
   IEEE ICNP 2018
   Ahmed Saeed, Mostafa Ammar, Ellen Zegura, Khaled Harras

8. **Carousel: Scalable Traffic Shaping at End-Hosts**
   ACM SIGCOMM 2017
   Ahmed Saeed, Nandita Dukkipati, Vytautas Valancius, Vinh The Lam,
   Carlo Contavalli, Amin Vahdat

9. **Local and Low-cost White Space Detection**
   IEEE ICDCS 2017
   Ahmed Saeed, Khaled Harras, Ellen Zegura, Mostafa Ammar

10. **Argus: Realistic Target Coverage by Drones**
    ACM/IEEE IPSN 2017
    Ahmed Saeed, Ahmed Abdelkader, Mouhyemen Khan, Azin Neishaboori, Khaled Harras, Amr Mohamed
    – Full version published in ACM Transactions on Sensor Networks 2019

11. **The Inapproximability of Illuminating Polygons by α-Floodlights**
    CCCG 2015
    Ahmed Abdelkader, _Ahmed Saeed_, Khaled Harras, Amr Mohamed

12. **Up and Away: A Visually-Controlled Easy-to-Deploy Wireless UAV Cyber-Physical Testbed**
    IEEE WiMob 2014
    Ahmed Saeed, Azin Neishaboori, Khaled Harras, Amr Mohamed

13. **Low complexity target coverage heuristics using mobile cameras** _(short paper)_
    IEEE MASS 2014
    Azin Neishaboori, _Ahmed Saeed_, Khaled Harras, Amr Mohamed

14. **On Target Coverage in Mobile Visual Sensor Networks**
    ACM MOBIWAC 2014
    Azin Neishaboori, _Ahmed Saeed_, Khaled Harras, Amr Mohamed

15. **Location-Aware Probabilistic Route Discovery for Cognitive Radio Networks**
    IEEE WCNC 2014
    Ahmed Elbagori, _Ahmed Saeed_, Moustafa Youssef

16. **A Low-Cost Large-Scale Framework for Cognitive Radio Routing Protocols Testing**
    IEEE ICC 2013
    Ahmed Saeed, Mohamed Ibrahim, Khaled Harras, Moustafa Youssef

17. **RASID: A Robust WLAN Device-free Passive Motion Detection System**
    IEEE PerCom 2012
    Ahmed E. Kosba, _Ahmed Saeed_, Moustafa Youssef
    – Full version published in IEEE Journal of Selected Topics in Signal Processing 2014

JOURNAL
PUBLICATIONS

1. **On Realistic Target Coverage by Autonomous Drones**
   ACM Transactions on Sensor Networks 2019
   Ahmed Saeed, Ahmed Abdelkader, Mouhyemen Khan, Azin Neishaboori, Khaled Harras, Amr Mohamed

2. **Toward Dynamic Real-time Geo-location Databases for TV white Spaces**
   IEEE Network 2015
   Ahmed Saeed, Mohamed Ibrahim, Khaled Harras, Moustafa Youssef

3. **Ichnaea: A Low-overhead Robust WLAN Device-free Passive Localization System**
   IEEE Journal of Selected Topics in Signal Processing 2014
   Ahmed Saeed, Ahmed E. Kosba, Moustafa Youssef

4. **Nuzzer: A Large-Scale Device-Free Passive Localization System for Wireless Environments**
   IEEE Transactions on Mobile Computing 2013
   Moustafa Seifeldin, _Ahmed Saeed_, Ahmed E. Kosba, Moustafa Youssef, Amr El-Keyi

WORKSHOP PUBLICATIONS

1. **Vision: The Case for Symbiosis in the Internet of Things**
   ACM MCS 2015 in conjunction with ACM MobiCom
   Ahmed Saeed, Mostafa Ammar, Khaled Harras, Ellen Zegura

2. **Towards a Characterization of White Spaces Databases Errors: An Empirical Study**
   ACM WiNTECH 2014 in conjunction with ACM MobiCom
   Ahmed Saeed, Khaled Harras, Moustafa Youssef

3. **Target Coverage Heuristics Using Mobile Cameras**
   Robotic Sensor Networks 2014 part of Cyber-Physical Systems Week
   Azin Neishaboori, _Ahmed Saeed_, Amr Mohamed, Khaled Harras

REFEREED POSTERS

1. **A Robust Technique for WLAN Device-free Passive Motion Detection**
   ACM MobiCom 2011
   Ahmed E. Kosba, _Ahmed Saeed_, Moustafa Youssef

2. **Quantifying the Impact of GPU Specific Optimizations: An Experimental Study on a Weather Forecasting Application**
   ACM PACT 2010
   Ahmed Saeed, Emad Elwany, Emad Tawadros, Kareem Abdelsalam, Pakinam Yousry, Samia Hafez

3. **DNIS: A Middleware for Dynamic Multiple Network Interface Scheduling**
   ACM MobiCom 2009
   Ahmed Saeed, Karim Habak, Mahmoud Fouad, Moustafa Youssef

RESEARCH DEMOS

DNIS: Dynamic Multiple Network Interface Scheduler
ACM MobiCom 2009
Ahmed Saeed, Karim Habak, Mahmoud Fouad, Moustafa Youssef

PATENTS

US Patent 10,454,835
"Device And Method For Scalable Traffic Shaping With A Time-Indexed Data Structure"
Carlo Contavalli, Nandita Dukkipati, _Ahmed Issa_, Vytautas Valancius, Granted Oct. 2019.

US Patent 9,800,946
"Dynamic real-time TV white space awareness"
Khaled Harras, Moustafa Amin Youssef, Mohammed Ibrahim, _Ahmed Issa_, Granted Oct. 2017.

TEACHING EXPERIENCE

Massachusetts Institute of Technology,

Guest Lecturer on Evolution of Internet Routing   Fall 2019
Computer Networks (6.829)

Georgia Institute of Technology,

Guest Lecturer on Congestion Control in Datacenters   Spring 2017, Fall 2017
Advanced Computer Networks (CS 6250)

Teaching Assistant   Fall 2015, Spring 2017
Advanced Computer Networks (CS 6250)
Introduction to Computer Networks (CS 8803)

Alexandria University, Alexandria, Egypt

Teaching Assistant/Demonstrator   Fall 2010
Introduction to Computers and Programming
Programming in C
Systems Programming

MENTORSHIP **Current Mentees:**
EXPERIENCE

- Inho Cho (PhD - MIT)   Summer 2019 - Present
   Project: *Overload control for µs-scale RPCs* (OSDI '20 [2])

- Arjun Balasingam (PhD - MIT)   Fall 2019 - Present
   Project: *Resource scheduling in mobility platforms*

- Venkat Arum (PhD - MIT)   Summer 2020 - Present
   Project: *Formalizing Internet congestion control*

Former Mentees:

- Yimeng Zhao (PhD - Georgia Tech)   Fall 2017 - Summer 2020
   Project: *Zero-drop network stack at end hosts* (CoNEXT '19 [4])
   Current position: Software Engineer at Facebook

- Kareem Abdallah (MSc - Alexandria University)   Spring 2017 - Spring 2019
   Project: *Characterizing the Effects of Rapid LTE Deployments* (TMA '19 [6])
   Current position: Data Science Manager at Ericsson

- Esther Showalter (PhD - UCSB)   Summer 2018
   Project: *Wardriving for TVWS spectrum sensing*

- Raghavendra Murali (MSc - Georgia Tech)   Spring 2017 - Fall 2017
   Project: *Caching in cellular networks*
   Current position: Senior Software Engineer at Qualcomm

- Mouhyemen Khan (Undergraduate - CMU-Qatar)   Spring 2016 - Fall 2016
   Project: *Surveillance with autonomous drones* (IPSN '17 [10])
   Current position: PhD Student at Georgia Tech

SERVICE **Invited Reviewer**

- IEEE/ACM Transactions on Networking (ToN), IEEE Journal on Selected Areas in Communications (JSAC), IEEE Transactions on Vehicular Technology (TVT), IEEE Transactions on Mobile Computing (TMC), IEEE Computer, ACM Transactions on Sensor Networks (TOSN), Elsevier Pervasive and Mobile Computing, Elsevier Ad Hoc Networks, Elsevier Computer Networks, IEEE VTC2015-Spring

Leadership roles

- Vice President of Graduate Student Council for College of Computing at Georgia Tech (2015-2016).

- Senator at Graduate Student Senate of the Graduate Student Government Association (2015-2016).

- Team Leader of *the first* Software Freedom Day @ Alexandria University with 600+ attendees (2009).

- Class Representative of Computer Science Class 2010, Alexandria University (2006-2007).

- **Annulus: A Dual Congestion Control Loop for Datacenter and WAN Traffic Aggregates**
  Conference of the ACM Special Interest Group on Data Communication (SIGCOMM) Aug. 2020

- **Scalable Packet Scheduling in Software**
MIT	Feb. 2019
Princeton	Feb. 2019
USC	Oct. 2018
CMPE280N Seminar on Networks, UCSC	Oct. 2018

- **Eiffel: Efficient and Flexible Software Packet Scheduling**
  USENIX Symposium on Networked Systems Design and Implementation (NSDI)   Feb. 2019

- **Carousel: Scalable Traffic Shaping at End-Hosts**
  Conference of the ACM Special Interest Group on Data Communication (SIGCOMM) Aug. 2017

- **Local and Low-cost White Space Detection**
Conference on Distributed Computing Systems (ICDCS)	Jun. 2017
Marconi Society Young Scholars Symposium with Vint Cerf	Mar. 2015

- **Argus: Realistic Target Coverage by Drones**
  Conference on Information Processing in Sensor Networks (IPSN)   Apr. 2017

- **RASID: A Robust WLAN Device-free Passive Motion Detection System**
  Conference on Pervasive Computing and Communications (PerCom)   Mar. 2012

- **DNIS: A Middleware for Dynamic Multiple Network Interface Scheduling**
  Student Research Competition at MobiCom   Sep. 2009