Ahmed Saeed (a.k.a. Ahmed Said Mohamed Tawfik Issa)

CONTACT INFORMATION	KACB 3338, 266 Ferst Dr NW Atlanta, GA 30332	asaeed@cc.gatech.edu https://faculty.cc.gatech.edu/~amsmti3/

RESEARCH INTERESTS

Theory, design, and implementation of scalable **computer networks** and **computer systems**, including resource scheduling, congestion control, and formal methods.

EDUCATION

Georgia Institute of Technology, Atlanta, Georgia, USA
PhD in Computer Science   August 2019

Georgia Institute of Technology, Atlanta, Georgia, USA
M.Sc. in Computer Science   May 2018

Alexandria University, Alexandria, Egypt
Bachelor's of Science, Computer and Systems Engineering   July 2010

EMPLOYMENT

Georgia Institute of Technology, Atlanta, Georgia, USA
Assistant Professor   Aug. 2021 - now

Massachusetts Institute of Technology, Cambridge, Massachusetts, USA
Postdoctoral Associate   Sep. 2019 - Jul. 2021

Google Inc., Sunnyvale and Mountain View, CA, USA.
Student Researcher   Aug. 2018 - Dec. 2018
Software Engineering Intern   May 2018 - Aug. 2018
Software Engineering Intern   May 2016 - Jan. 2017
Software Engineering Intern   May 2015 - Aug. 2015

Carnegie Mellon University Qatar and **Qatar University**, Doha, Qatar.
Research Fellow   Nov. 2013 - July 2014

Egypt-Japan University for Science and Technology, Alexandria, Egypt
Research Assistant   July 2010 - Aug. 2013

Nile University, Cairo, Egypt
Undergraduate Research Assistant   July 2009 - Aug. 2009

HONORS AND AWARDS

DARPA Riser 2022

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.

FUNDING

- **Collaborative Research: CNS Core: Medium: High-performance Network Stacks for the Edge**, NSF award CNS-2212098
  PI with Alex Daglis and Adam Belay (MIT), $1,198,140 (Georgia Tech: $748,140) 10/2022-09/2025.

- **Collaborative Research: CNS Core: Medium: Robust Behavioral Analysis and Synthesis of Network Control Protocols Using Formal Verification**,
  NSF award CNS-2212103
  Co-PI with Hari Balakrishnan (MIT), $1,199,020 (Georgia Tech: $299,020) 10/2022-09/2025.

- **Google Research Award**
  Unrestricted gift, $80,000, 06/2022

CONFERENCE
PUBLICATIONS

1. **Protego: Overload Control for Applications with Unpredictable Lock Contention**
   USENIX NSDI 2023
   Inho Cho, Ahmed Saeed, Seo Jin Park, Mohammad Alizadeh, Adam Belay

2. **Toward Formally Verifying Congestion Control Behavior**
   ACM SIGCOMM 2021
   Venkat Arun, Mina Tahmasbi Arashloo, Ahmed Saeed, Mohammad Alizadeh, Hari Balakrishnan

3. **Throughput-Fairness Tradeoffs in Mobility Platforms**
   ACM MobiSys 2021
   Arjun Balasingam, Karthik Gopalakrishnan, Radhika Mittal, Venkat Arun, Ahmed Saeed,
   Mohammad Alizadeh, Hamsa Balakrishnan, Hari Balakrishnan

4. **Scouting the Path to a Million-Client Server**
   PAM 2021
   Yimeng Zhao, Ahmed Saeed, Ellen Zegura, Mostafa Ammar

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

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

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

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

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

10. **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

11. **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

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

13. **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

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

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

16. **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

17. **Low complexity target coverage heuristics using mobile cameras** *(short paper)*
    IEEE MASS 2014
    Azin Neishaboori, Ahmed Saeed, Khaled Harras, Amr Mohamed

18. **On Target Coverage in Mobile Visual Sensor Networks**
    ACM MOBIWAC 2014
    Azin Neishaboori, Ahmed Saeed, Khaled Harras, Amr Mohamed

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

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

21. **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 AND
DEMOS

1. **A Robust Technique for WLAN Device-free Passive Motion Detection**
   ACM MobiCom 2011 (Poster)
   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 (Poster)
   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 (Poster)
   Ahmed Saeed, Karim Habak, Mahmoud Fouad, Moustafa Youssef

4. **DNIS: Dynamic Multiple Network Interface Scheduler**
   ACM MobiCom 2009 (Demo)
   Ahmed Saeed, Karim Habak, Mahmoud Fouad, Moustafa Youssef

PATENTS

1. 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.

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

SERVICE

PC Member: NSDI '23, SIGCOMM '22, HotNets '22, ANRW '22, APNet '22, ANCS '21

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, IEEE Networking Letters, ACM Transactions on Sensor Networks (TOSN), Elsevier Pervasive and Mobile Computing, Elsevier Ad Hoc Networks, Elsevier Computer Networks, IEEE VTC2015-Spring.

Georgia Tech Service

- Member, CoC Communications Faculty Advisory Board, 2022.
- Member, PhD Admissions Committee, 2022.
- Member, PhD Visit Day Committee, 2022

TALKS

- **High Performance Network Stacks for Edge Servers**

Google Networking Research Summit 2022	Feb. 2022

- **Building Scalable Network Stacks for Modern Applications**

University of Texas at Austin	Apr. 2021
École Polytechnique Fédérale de Lausanne (EPFL)	Apr. 2021
University of Toronto	Mar. 2021
Microsoft Research	Mar. 2021

Imperial College London   Mar. 2021
George Mason University   Mar. 2021
Simon Fraser University   Mar. 2021
University of British Columbia   Mar. 2021
Virginia Tech   Feb. 2021
University of Waterloo   Feb. 2021
Max Planck Institute - SWS   Feb. 2021
Georgia Tech   Feb. 2021
King Abdullah University of Science and Technology (KAUST)   Jan. 2021

- **Annulus: A Dual Congestion Control Loop for Datacenter and WAN Traffic Aggregates**
  ACM SIGCOMM Conference   Aug. 2020

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

- **Scalable Packet Scheduling in Software**
  Massachusetts Institute of Technology   Feb. 2019
  Princeton University   Feb. 2019
  University of Southern California   Oct. 2018
  University of California - Santa Cruz   Oct. 2018

- **Carousel: Scalable Traffic Shaping at End-Hosts**
  ACM SIGCOMM Conference   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