

# MAQSOOD CAREEM

## PhD Researcher, Graduate Research Assistant

@ mabdulcareem@albany.edu    +1 518-409-9302    Albany, NY, USA  
in linkedin.com/in/maqsoodc/    Web: www.albany.edu/~ma952922/maqsood



## QUALIFICATIONS

- PhD scholar on Generalization of AI-driven beyond 5G networks (GPA 3.9)
- MSc in Blockchain-driven autonomous spectrum sharing (GPA 3.9)
- 8+ years of research and teaching experience in wireless communications
- 21+ technical publications: 5 journals, 12 conferences, 4 workshops & forums
- Multiple best paper awards at prestigious IEEE conferences, full scholarship awards, a national project award and a US patent
- Industry experience in 4G/ 3G cellular networks and digital signal processing
- Strong knowledge of wireless technologies (PHY/MAC, MIMO/OFDM, V2X), standards (802.11, 4G-LTE, 5G and LORA) and trends in tech (AI, Blockchain)
- Experience in innovative patented research (RFEye in the Sky), writing and working on funded NSF research proposals (NSF #2128581, NSF #1823225)
- Experimental skills with software defined radio, drones, analog front-ends, GPS, single chip processors (Raspberry pi) & micro-controllers (Arduino)
- Programming skills on MATLAB, Python, C, Bash, Linux, NS-3, FPGA, Spice
- Session chair & Reviewer for prestigious IEEE conferences & journals (Transactions on Cognitive Communications & Networking (TCCN), DYSPAN, VTC)

## EDUCATION

### Ph.D.\* Electrical & Computer Engineering [GPA: 3.9]

📍 University at Albany    📅 Jan 2017 – Mar 2022    📍 NY, USA  
• Thesis: "Trust & Generalization in Wireless Communications & Networks"

### M.S. Electrical & Computer Engineering [GPA: 3.9]

📍 University at Albany    📅 Jan 2019 – Nov 2019    📍 NY, USA  
• Thesis: "Autonomous Spectrum Enforcement: A Blockchain Approach"

### B.S. Electrical & Electronic Engineering

📍 University of Peradeniya    📅 June 2010 – June 2014    📍 Sri Lanka  
• Project: "Development of a Stepped Frequency Ground Penetrating RADAR"

## INDUSTRIAL EXPERIENCE

### Graduate Research Assistant

📍 University at Albany    📅 Jan 2017 – Ongoing    📍 Albany, NY USA  
• Research: Learning-based optimization of transceivers, Blockchain for MANETs, Spectrum enforcement, Heterogeneous CloudRAN, Localization using Drones.

### Radio Frequency (RF) Engineer

📍 KOKO (Totemic)    📅 June 2018 – Sep 2018    📍 Palo Alto, CA, USA  
• Characterized the RF coverage of wearable-free fall detection device and analyzed its key features: indoor localization, tracking, and behavioral analytics.

### Assistant Lecturer/ Graduate Assistant

📍 University of Peradeniya    📅 Nov 2014 – July 2016    📍 Sri Lanka  
• Research: Microwave circuit and component design, RADAR design, High-speed electronics, Wireless communications & networking, Digital signal processing.

### Radio Frequency & Network Engineer

📍 Etisalat    📅 Oct 2013 – Jan 2014    📍 Sri Lanka  
• Configured virtual router networks & live network tools. Exposed to all radio engineering divisions (Network Switching, Operations, Planning&Optimization).

### Research Engineer

📍 University of Malaya    📅 Aug 2012 – Mar 2013    📍 Malaysia  
• Research: Dye-Sensitized Solar Cells, Quantum Dot-Sensitized Solar Cells, Trends in Solid State Ionics, Advanced Material Science, Quantum Physics.  
• Performed digital instrumentation, embedded control & programming, data acquisition and interfacing for measurement equipment and sensors.

## AWARDS

- "US Provisional Patent", RFEye in the Sky: Localization using a single UAV. [Filed, Patent Pending]
- "Best Paper Award [IEEE ComSoc]", IEEE DySPAN 2021
- "Best Paper Award [IEEE ComSoc]", IEEE COMSNETS 2020, Blockchain Workshop
- "Graduate Fellowship Recipient", University at Albany, SUNY, NY, USA
- "Travel Grant Recipient", IEEE ComSoc, DySPAN & SECON, ACM SigComm, NITRD WSRD
- "Best Paper Award, Runner Up", IEEE ICIIS 2014
- "Commemoration of Success Story", NI AWR
- "National Project Award: Development of a Stepped Frequency Ground Penetrating Radar", Institute of Engineers, Sri Lanka

## HIGHLIGHTS

- Conference Session Chair for IEEE VTC 2018-Fall, Chicago, USA
- Assisted in preparing and worked under funded grants - NSF #2128581, NSF #1823225
- Conference Reviewer for IEEE journals (TCCN), conferences (IEEE VTC 2018)
- Founded the IEEE-MTTs chapter at University of Peradeniya, Sri Lanka

## SCHOLARSHIPS

- Graduate Research Assistantship (PhD) 2019
- Graduate Research Assistantship (MSc) 2017
- Full admission scholarship (BSc) 2010

## NSF PROJECTS

- Collaborative RFI cancellation in Radio Astronomy [NSF #2128581] with Caltech Astronomy
- CHRONOS Cloud-based Hybrid RF-Optical Network Over Synchronous Links [NSF #1823225]

## TEACHING

- Conducted Grad (G)/ Undergrad (UG) lectures and designed lab classes for:
  - Cyber-Physical Systems (G/UG)
  - Computer Communication Networks (UG)
  - Internet of Things (G/UG)
  - Microwave Engineering (G/UG)
  - Antennas & Propagation (G/UG)
  - Integrated Analog Electronics (UG)
  - Product Design (UG)
  - Signal Processing & Systems (UG)
  - Information Theory (UG)

# KEY RESEARCH & PROJECTS

## Generalization of AI driven Wireless Communication

- Designed generalized AI transceivers & DSP algorithms that enable reliable comms in challenging channels. [ICC22,ICC21,TWC20,VTC18,5GWF18,SenSys19](#)

## Autonomous Spectrum Sharing & Enforcement

- Designed a hybrid system with crowd and mobile agents (UAVs, UGVs) to enforce spectrum. [DySPAN21,TMC22\\*,TMC20,MS Thesis,TCCN19,DySPAN19,DySPAN18](#)

## RFI Cancellation for Radio Astronomy

- Designed a novel and deployable eigen-space based collaborative RF Interference cancellation mechanism for Radio Astronomy. [DySPAN21,RFI22](#)

## Blockchain-based Secure Networking

- Architected a hierarchical blockchain-based distributed reputation framework to achieve reliable network utilities among untrustworthy nodes. [COMSNETS20](#)

## Drone-based Localization and Detection

- Designed a UAV prototype testbed for wireless comms & distributed signal processing [blindly locate any RF source] using a single drone. [TMC20,SECON19](#)

## CHRONOS: A Heterogeneous Cloud RAN

- Architected a Cloud Radio Access Network with heterogeneous and synchronous RF and optical links (CHRONOS) to support beyond 5G applications. [5GWF18](#)

## RF-Microwave Tranceivers and Circuitry

- Designed a high-resolution stepped-frequency ground penetrating RADAR & improved performance of passive components. [TDEI15,ICIS15,BS Thesis,ICIIS14](#)

# RECENT PUBLICATIONS

## Selected Journals

- "Reputation-based Distributed Spectrum Enforcement using Blockchain", [Maqsood Careem](#) and [A. Dutta](#) [Under Review, [IEEE TMC 2022](#)]
- "RFEye in the Sky", [Maqsood Careem](#), [J. Gomez](#), [D. Saha](#) and [Aveek Dutta](#) and [A. Dutta](#) [[IEEE TMC 2020](#)]
- "Real-time Prediction of Non-stationary Wireless Channel", [Maqsood Careem](#) and [A. Dutta](#) [[IEEE TWC 2020](#)]
- "Spectrum Enforcement and Localization using Autonomous Agents with Cardinality", [Maqsood Careem](#) and [A. Dutta](#) [[IEEE TCCN 2019](#)]
- "Moisture Estimation of Transformer Pressboard by Micro-strip Ring Resonator at GHz Frequencies", [C. Samarasinghe](#), [Maqsood Careem](#) et al. [[IEEE TDEI 2015](#)]

## Selected Conferences & Workshops

- "Spectrum Sharing via Collaborative RFI Cancellation for Radio Astronomy", [Maqsood Careem](#), et al. [[IEEE DySPAN 2021 - BEST PAPER AWARD](#)]
- "Unified Characterization and Precoding for Non-Stationary Channels", [Zhibin Zhou](#), [Maqsood Careem](#) and [A. Dutta](#) [[IEEE ICC 2022](#)]
- "On Equivalence of Neural Network Receivers", [Maqsood Careem](#), [A. Dutta](#), and [N. Thawdar](#) [[IEEE ICC 2021](#)]
- "Reputation Based Routing in MANET Using Blockchain", [Maqsood Careem](#) and [A. Dutta](#) [[IEEE COMSNETS 2020 Blockchain Workshop - BEST PAPER AWARD](#)]
- "SenseChain: Blockchain Based Reputation System for Distributed Spectrum Enforcement", [Maqsood Careem](#) & [A. Dutta](#) [[IEEE DySPAN 2019](#)]
- "HiPER-V: A High Precision Radio Frequency Vehicle for Aerial Measurements", [Maqsood Careem](#), [J. Gomez](#), [D. Saha](#) & [A. Dutta](#) [[IEEE SECON 2019](#)]
- "Spatio-Temporal Recommender for V2X Channels", [Maqsood Careem](#) & [A. Dutta](#) [[IEEE VTC 2018-Fall](#)]
- "CHRONOS: A Cloud based Hybrid RF-Optical Network Over Synchronous Links", [M. Careem](#), [M. Khadr](#), [A. Hussein](#), [D. Saha](#), [H. Elgala](#), [A. Dutta](#) [[IEEE 5GWF 2018](#)]
- "Channel Analytics for V2X Communication", [Maqsood Careem](#) & [A. Dutta](#) [[IEEE 5G World Forum 2018](#)]
- "Multi-Agent Planning with Cardinality: Towards Autonomous Enforcement of Spectrum Policies", [Maqsood Careem](#) & [A. Dutta](#) [[IEEE DySPAN 2018](#)]
- "The Effects of Radiation Losses on the Measurement of Loss Tangent Using Microstrip Ring Resonators", [Gunawardena](#), [M. Careem](#), [Samarasinghe](#) [[ICIIS 2015](#)]

# EXPERTISE

Wireless Comms, Sensors & Networks

Deep Learning XAI Beyond 5G

Blockchain Distributed Consensus

Spectrum Access PHY/MAC V2X

MIMO/OFDM Signal Processing

# CERTIFICATIONS

- Mastering C++ for Interfacing & Control
- Communications Service Provider for Industry
- Introduction to FPGAs and Interfacing
- A gateway to the CERN Supercollider Summer Student Program, University of Malaya

# AFFILIATIONS

IEEE IEEE ComSoc IEEE MTTS

ACM ACM SIGCOMM

# SOFTWARE SKILLS

## Programming Languages

Python C Bash HTML

## Analytical Programming

Matlab

## Networking & Routing

NS-3 Wireshark Cisco Packet Tracer

## Open Source

Linux and Unix based systems

## Electronics & RF Simulation & Design

LabView Proteus OrCAD Diptrace

AWR MW Office Ansoft HFSS

# INSTRUMENT SKILLS

## Communication & Electronics Equipment

Software Defined Radios (SDR)

Spectrum/Network Analyzers Oscilloscope

## Embedded Systems

RaspberryPi Arduino Micro-Controllers

## PCB Fabrication Equipment

Milling Electroplating Imaging

# REFERENCES

## Prof. Aveek Dutta

Assistant Professor & Director MESA Lab  
@ University at Albany ✉ [adutta@albany.edu](mailto:adutta@albany.edu)  
☎ +1 (518) 442-5083

## Prof. Dola Saha

Assistant Professor & Director MESA Lab  
@ University at Albany ✉ [dsaha@albany.edu](mailto:dsaha@albany.edu)  
☎ +1 (518) 442-5082

## Dr. Rathna Radhakrishnan

Principal DSP Architect  
@ Broadcom Inc. ✉ [r.rathnakumar@gmail.com](mailto:r.rathnakumar@gmail.com)  
☎ +1 (408) 621-5477