

Moh Sabbir Saadat

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University of South Carolina

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HIGHLIGHTS

- Research in **Wireless-enabled Sensing & Perception**, and **Mobile Computing**
- Advanced skill in coding (Python, Matlab, C/C++, Java), signal processing, and deep learning

SKILLS

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|------------------------------|--|
| Programming languages | Python, Matlab, C/C++, Java, System VERILOG |
| Software libraries | TensorFlow, Keras, PyTorch, ROS, OpenCV |
| Tools | Git, \LaTeX , Gnuplot, Inkscape |
| Quantitative Research | Signal processing, Image processing, Machine learning, Optimization, Mathematical modeling |
| Communication | English, Bengali |

EXPERIENCE

Graduate Research/Teaching Assistant **January, 2019 — Present**
SyReX Lab - University of South Carolina *Columbia, SC - USA*

- Primary areas of research are Sensing and Perception (Machine vision) with wireless signal in the millimeter-wave paradigm
- Seek ways to merge vision and sensing applications in 5G-and-beyond millimeter-wave networking devices
- Was assigned TA duty for "Introduction to Computer Networks" in Fall-2021, Spring-2022, Fall-2022, Spring-2023, Fall-2023

Executive Engineer **October, 2016 — November, 2018**
Siemens Healthcare Limited *Dhaka, Bangladesh*

- Assisted potential clients in making technical decisions

EDUCATION

Ph.D. in Computer Engineering, *University of South Carolina* June, 2024
B.Sc. in Electrical & Electronic Engineering, *Bangladesh University of Engineering & Technology* March, 2016

RESEARCH PROJECTS

Overview: I have been a member of SyReX lab at the University of South Carolina since Spring 2019. As part of my research focus, I seek to exploit the behavior of millimeter-wave signal to achieve sensing and perception in paradigms where conventional machine vision fails or is discouraged.

1. Coexistence of human activity sensing on millimeter-wave networking system,

Synopsis: We are seeking ways to overcome the challenges associated with combining networking and sensing on the same hardware. This allows us to integrate wireless sensing of human activity on existing wireless indoor Access Points (AP), eliminating the need for additional infrastructure.

Publications: CHASE'24; MobiSys'22

2. Imaging hidden objects with hand-held millimeter-wave devices,

Synopsis: Since millimeter-wave signals can penetrate opaque obstructions such as clothing, we propose equipping hand-held millimeter-wave devices with imaging capability. This allows easy and fast screening systems for both security and maintenance

Publications: IMWUT'21; ICCCN'20; HotMobile'21

3. Thermal characterization and heat dissipation of millimeter-wave devices,

Synopsis: Since millimeter-wave signal offer much higher bandwidth than conventional, low frequency radio signals, the radio front-ends consume much higher power. This causes the devices to heat up much faster. To tackle the problem of device overheating, we first study the temperature characterization of millimeter-wave signals, and then, explored how we can exploit a multi-antenna design to mitigate this problem.

Publications: ICNP'20; MobiCom'20; Elsevier HCC'24

PATENT

Sanjib Sur, Moh Sabbir Saadat, Srihari Nelakuditi, "Heat Dissipating for Millimeter-wave Devices with Antenna Switching"
Granted: February 2023