

Arindam Bose

PH.D. • RADAR SIGNAL PROCESSING RESEARCHER

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Summary

Currently working as a research engineer at KMB Telematics Inc. where we are making radar sensors for automotive cars. Finished Ph.D. in Electrical Engineering from the University of Illinois at Chicago under supervision of Prof. Mojtaba Soltanalian at WaveOPT lab. Always interested in devising a better problem-solving method for challenging tasks, and learning new technologies.

Work Experience

KMB Telematics Inc.

Arlington, VA, USA

SENIOR RESEARCH ENGINEER, RADAR SIGNAL PROCESSING

Oct. 2020 - Present

SENIOR RESEARCH INTERN, RADAR SIGNAL PROCESSING

May 2019 - Aug. 2020

- Developing the digital design of a high performance automotive MIMO radar system using cutting edge FPGAs, MCUs and MPUs
- Implementing sophisticated algorithms for antenna array designing for automotive MIMO radar

University of Illinois at Chicago

Chicago, IL, USA

RESEARCH ASSISTANT, WAVEOPT LAB, DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING

May 2016 - Dec. 2020

- Developed various non-convex optimization algorithms for waveform synthesis for active sensing systems
- Assisted and collaborated with Dr. M. Soltanalian in signal processing and optimization theory research and working towards PhD thesis

TEACHING ASSISTANT, DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING AND DEPARTMENT OF PHYSICS

Aug. 2015 - May 2020

- Courses assisted: Digital signal processing, Statistical signal processing, Image analysis and computer vision, Introductory physics, General physics

Mitsubishi Electric Research Laboratories

Cambridge, MA, USA

SUMMER INTERN, SIGNAL PROCESSING GROUP

May 2018 - Aug. 2018

- Developed efficient algorithms for Time-Domain Spectroscopy systems using THz

Cognizant Technology Solutions Pvt. Ltd.

Kolkata, India

PROGRAMMER ANALYST, HEALTH CARE PRACTICE

Apr. 2013 - Jul. 2014

- Developed and maintained several Java based web projects according to client requests
- Designed web services and complex web pages in JSP, HTML, CSS, and JavaScript

Education

University of Illinois at Chicago

Chicago, IL, USA

PHD IN ELECTRICAL ENGINEERING

2021

MS IN ELECTRICAL ENGINEERING

2020

- Thesis title: Waveform synthesis for active sensing with emerging applications (Advisor: Dr. Mojtaba Soltanalian)

West Bengal University of Technology

Kolkata, India

B.TECH IN ELECTRONICS AND COMMUNICATION ENGINEERING

2012

- Thesis topic: Efficient algorithms for digital watermarking (Advisor: Dr. Somnath Maiti)

Publications

MAJOR JOURNAL PAPERS

Waveform Design for Mutual Interference Mitigation in Automotive Radar

A. BOSE, B. TANG, W. HUANG, M. SOLTANALIAN, AND J. LI

2021

- Submitted in IEEE Transactions on Signal Processing

Mutual Interference Mitigation for Multiple Connected Automotive Radar Systems

A. BOSE, B. TANG, M. SOLTANALIAN, AND J. LI

2021

- Published in IEEE Transactions on Vehicular Technology, vol. 70, no. 10, Oct. 2021

Efficient Waveform Covariance Matrix Design and Antenna Selection for MIMO Radar

A. BOSE, S. KHOBAHI, AND M. SOLTANALIAN

2020

- Published in Elsevier Journal of Signal Processing, vol. 183, Jun. 2021

One-Bit Radar Processing With Time-Varying Sampling Thresholds

A. AMERI, A. BOSE, J. LI, AND M. SOLTANALIAN

2019

- Published in IEEE Transactions on Signal Processing

Constructing Binary Sequences With Good Correlation Properties: An Efficient Analytical-Computational Interplay

A. BOSE, M. SOLTANALIAN

2018

- Published in IEEE Transactions on Signal Processing

MAJOR CONFERENCE PRESENTATIONS

Deep One-Bit Compressive Autoencoder

S. KHOBAHI, A. BOSE, AND M. SOLTANALIAN

Rio de Janeiro, Brazil

Jul. 2021

- Presented in Statistical Signal Processing Workshop (SSP) 2021

Limits of Transmit Beamforming for Massive MIMO Radar

A. BOSE, A. GHOURI, AND M. SOLTANALIAN

Pacific Grove, CA, USA

Nov. 2020

- Presented in IEEE Asilomar Conference on Signals, Systems, and Computers 2020

Joint Optimization of Waveform Covariance Matrix and Antenna Selection for MIMO Radar

A. BOSE, S. KHOBAHI, AND M. SOLTANALIAN

Pacific Grove, CA, USA

Nov. 2019

- Presented in IEEE Asilomar Conference on Signals, Systems, and Computers 2019

THz Multi-Layer Imaging Via Nonlinear Inverse Scattering

A. BOSE, A. KADU, H. MANSOUR, P. WANG, P. BOUFONOS, P. ORLIK, AND M. SOLTANALIAN

Paris, France

Sep. 2019

- Presented in IEEE International Conference on Infrared, Millimeter, and Terahertz Waves (IRMMW-THz) 2019

Generalized Cyclic Algorithms for Designing Unimodular Sequence Sets with Good (Complementary) Correlation Properties

A. BOSE, I. A. ARRIAGA-TREJO, A. G. OROZCO-LUGO, AND M. SOLTANALIAN

Sheffield, UK

Jul. 2018

- Presented in IEEE Sensor Array and Multichannel Signal Processing Workshop (SAM) 2018, July 2018

Low-Rank Matrix Recovery from One-Bit Comparison Information

A. BOSE, A. AMERI, M. KLUG, M. SOLTANALIAN

Calgary, Canada

Apr. 2018

- Presenting in 43rd IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), April 2018

Designing Signals with Good Correlation and Distribution Properties

A. BOSE, N. MOHAMMADI, M. SOLTANALIAN

Calgary, AB, Canada

Apr. 2018

- Presenting in 43rd IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), April 2018

Efficient Construction of Polyphase Sequences With Optimal Peak Sidelobe Level Growth

A. BOSE, M. SOLTANALIAN

Montreal, QC, Canada

Nov. 2017

- Presented in 5th IEEE Global Conference on Signal and Information Processing (GlobalSIP), Nov 2017

Non-Convex Shredded Signal Reconstruction via Sparsity Enhancement

A. BOSE, M. SOLTANALIAN

New Orleans, USA

Mar. 2017

- Presented in 42nd IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), March 2017

Skills

Programming Language	Python, Rust, Verilog, VHDL, Java, C, C++
Technology	FMCW Radar, MIMO Radar, General Signal Processing
Development Tool	Matlab, Vivado, Vitis
Language	English, Hindi, Bengali

Honors & Awards

2019	Signal Processing Society Chicago Chapter Appreciation , IEEE	Chicago, IL, USA
2014	Associate of the Month , Cognizant Technology Solutions	Kolkata, India
2011	Winner , The Telegraph Knowhow Innovation Hub, INFOCOM 10-11	Kolkata, India
2010-2013	Special Prize , Science and Engineering Fair	Kolkata, India
2008-2012	Educational Scholarship , Central Government of India	Kolkata, India