Abdollah Ajorloo - CV

Postdoctoral Fellow at Sharif University of Technology

Research Interests

Statistical Signal Processing, MIMO Radar, Optimization, Compressed Sensing, Radar Target Recognition, Riconfigurable Intelligent Surface (RIS), Integrated Sensing and Communication (ISAC)

Education

2019-2022 **Postdoctoral Fellow - Sharif University of Technology**
Host: Dr. Amini

2013-2019 **Ph.D. in Electrical Engineering** (majored in Communication Systems) **- Sharif University of Technology**
GPA: 18.1
Thesis Subject: **Application of sparse modeling to MIMO radars**
Supervisor: Dr. Bastani, *Advisor:* Dr. Amini

2011-2013 **M.Sc. in Electrical Engineering** (majored in Communication Systems) **- Sharif University of Technology**
GPA: 18
Thesis Subject: **Statistical modeling of spatial and temporal characteristics of target range profiles for radar target recognition**
Supervisor: Dr. Bastani

2007-2011 **B.Sc. in Electrical Engineering** (majored in Communications) **- Shahed University**
GPA: 18.5
Thesis Subject: **Analysis and evaluation of power control techniques in CDMA cellular systems**

Honors And Awards

2019-2021 Postdoctoral research fellowship awarded by Iran national science foundation (INSF)

2013-present Member of the Iran's national elite foundation (INEF)

2015-2017 Talented PhD students fellowship awarded by the Iran's national elites foundation (INEF)

2013 Ranked 9th (among more than 1000 participants) in the nation-wide entrance exam for Ph.D. Studies of Electrical Engineering

2011 Ranked 28th (among about 20000 participants) in the nation-wide entrance exam for MSc. Studies of Electrical Engineering

2011 Ranked 1st among all Electrical Engineering BSc. students (about 70 students), Shahed University.

Journal Papers

- A. Ajorloo, A. Amini and R. Amiri, "A Joint Scheme of Antenna Placement and Power Allocation in a Compressive-Sensing-Based Colocated MIMO Radar," *IEEE Sensors Letters*, vol. 6, no. 10, Oct. 2022.
- A. Ajorloo, A. Amini, E. Tohidi, M. H. Bastani and G. Leus, "Antenna Placement in a Compressive Sensing-Based Colocated MIMO Radar," *IEEE Transactions on Aerospace and Electronic Systems*, vol. 56, no. 6, pp. 4606-4614, Dec. 2020.
- A. Ajorloo, R. Amiri, M. H. Bastani, and A. Amini, "Sensor Selection for Sparse Source Detection in Planar Arrays," *Electronics Letters.*, vol. 55, no. 7, pp. 411–413, Apr. 2019.
- A. Ajorloo, A. Amini, M. H. Bastani, "A Compressive Sensing Based Colocated MIMO Radar Power Allocation and Waveform Design," *IEEE Sensors Journal*, vol. 18, no. 22, pp. 9420-9429, Nov. 2018.
- Y. Norouzi, E. S. Kashani, and A. Ajorloo, "Angle of arrival-based target localisation with low earth orbit satellite observer," *IET Radar, Sonar & Navigation*, vol. 10, no. 7, pp. 1186–1190, Aug. 2016.
- M. Hadavi, A. Ajorloo, M. M. Nayebi, and M. H. Bastani, "Short-term and Long-term Dependency Modeling of Consecutive Range Profiles for Radar Target Recognition", *scientific and research journal of Radar*, vol. 3, no.2, pp. 45-52, 2015 (in Persian).
- A. Ajorloo, M. Hadavi, M. H. Bastani, and M. M. Nayebi, "Radar HRRP Modeling using Dynamic System for Radar Target Recognition", *Radioengineering journal*, vol. 23, no.1, pp. 121-127, Apr. 2014.

Under Preparation:

- A. Ajorloo and A. Amini, "Antenna Placement and Power Allocation in RIS-Assisted Colocated MIMO Radars Based on Cramer-Rao Lower Bound Optimization", under preparation for submission to *IEEE Transactions on Signal Processing*.
- A. Ajorloo, R. Amiri and, M. boloursaz Mashhadi, "Towards User-Aided Dual-Functional Radar and Communication Systems: Cooperative Localization using Reconfigurable Intelligent Surfaces", under preparation for submission to *IEEE Transactions on Signal Processing*.

Conference Papers

- A. Norouzi, R. Amiri, A. Ajorloo, and, M. M. Nayebi, "A Novel Closed-Form Solution for Moving Target Localization in Distributed MIMO Radars", in *28th Iranian Conference on Electrical Engineering (ICEE)*, Tabriz, Iran, May 2020.
- A. Ajorloo, A. Amini, and M. Hassan Bastani, "Compressive sensing-based colocated MIMO radar with reduced number of transmit antennas," in *2019 Iran Workshop on Communication and Information Theory (IWCIT)*, Tehran, Iran, April 2019.
- A. Ajorloo, A. Amini, and M. H. Bastani, "An approach to power allocation in MIMO radar with sparse modeling for coherence minimization," in *2017 25th European Signal Processing Conference (EUSIPCO)*, Kos island, Greece, , Aug 2017.
- A. Ajorloo, M. Hadavi, M. H. Bastani, and M. M. Nayebi, "Radar target recognition using dynamic system model," in *2014 IEEE Radar Conference*, Cincinnati, OH, USA, May 2014.
- A. Ajorloo, M. Hadavi, M. M. Nayebi, and M. H. Bastani, "Statistical modeling of consecutive range profiles for radar target recognition," in *2013 14th International Radar Symposium (IRS)*, Dresden, Germany, June 2013.

Work Experience

Sep 2013 - Aug 2021 Electronics Research Institute, Sharif University of Technology, Tehran, Iran
Research Associate, System Design Engineer

Projects:

- Design and development of a DVBT-based multiple-antenna passive radar
- Development of a radar signal simulator/radar processing unit simulator using MATLAB
- Analysis, simulation, optimization, and algorithm development for AOA-based passive source localization using single aerial moving platform (for fixed/moving sources)
- System design of a colocated MIMO radar
- Design of automatic modulation recognition schemes
- Design of physical and data link layers for downlink and uplink of a 1-to-10 multiple access wireless link between fixed ground stations

Aug 2011 - Oct 2011 Electronics Research Institute, Sharif University of Technology, Tehran, Iran
Research Intern

Project: Research on MTI processing in synthetic aperture radars (SARs)

Jun 2011 - Aug 2011 Iran Telecommunication Research Center (ITRC)
Research Intern

Project: Assessment and simulation of PAPR (peak to average power ratio) reduction techniques in OFDM systems

Teaching Experience

Spring 2015, Fall 2016, Spring 2018 **Teacher of "Fundamentals of Electrical Engineering I"**
Sharif University of Technology

Spring 2020, Fall 2020 **Teacher of "Probability and Statistics"**
Shahed University

Fall 2012, Fall 2013, Fall 2014, Fall 2015, Fall 2016 **TA of "Stochastic Processes"**
Sharif University of Technology
Teacher: Dr. Bastani

Spring 2017 **TA of "Probability and Statistics"**
Sharif University of Technology
Teacher: Prof. Nayebi

Spring 2017 **TA of "Probability and Statistics"**
Sharif University of Technology
Teacher: Prof. Behnia

Fall 2010 **TA of "Communication Circuits"**
Shahed University
Teacher: Dr. Jalali

Other Professional Experience

- Executive committee member of the first Iran workshop on radar systems (IRWRS 2016), Sharif University of Technology, February 29th - March 3rd.
- Reviewer of the following journals: IEEE Sensors, IEEE Trans. on Vehicular Technology, IET Radar, Sonar & Navigation, IET Electronics Letters.

Software Engineering Skills

- **Programming Languages**

  MATLAB
  Mathcad
  C/C++
  HDL coding with Xilinx Sysgen in MATLAB
  Basics of Python, TensorFlow, Keras

- **Miscellaneous**

  OPNET
  ISE Xilinx
  HFSS

Language Skills

- **Persian:** native
- **English:** fluent
- **Azeri and Arabic**: familiar

References

Name	Dr. Arash Amini	**Name**	Prof. Mohammad Mahdi Nayebi
Affiliation	Sharif University of Technology	**Affiliation**	Sharif University of Technology
Position	Associate Professor	**Position**	Professor
Contact		**Contact**	
Tel		**Tel**	

Name	Dr. Mohammad Hassan Bastani	**Name**	Dr. Siavash Bayat
Affiliation	Sharif University of Technology	**Affiliation**	Sharif University of Technology
Position	Associate Professor	**Position**	
Contact		**Contact**	
Tel		**Tel**	