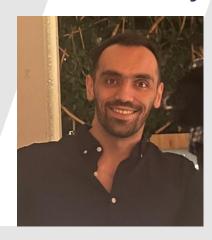# Reza Mohammadi Asiyabi

Personal Information

Date of Birth:
May 31, 1994

Nationality:
Iranian

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Research Interests

- Deep Learning and advanced Machine Learning Algorithms
- Remote Sensing and Earth Observation
- Synthetic Aperture Radar (SAR)
- Environmental Studies
- Big Data Analysis

Languages

- English – C1
- Persian – Native
- Azari Turkish – Native

Education

Research Assistant and PhD student – Dec 2020 to Dec 2023 (expected)
National University of Science and Technology POLITEHNICA Bucharest (UNSTPB), Bucharest, Romania

- Research Assistant and PhD student, Research Center for Spatial Information (CEOSpaceTech), UNSPB, Bucharest, Romania.
- Early-Stage Researcher in the frame of EU Marie Skłodowska-Curie innovative training network project MENELAOS-NT in the field of "Deep learning for SAR data in presence of adversarial samples"

Visiting Researcher – Oct 2021 to Oct 2022
Zentrum für Sensorsysteme (ZESS), University of Siegen, Siegen, Germany

- Research secondment in the frame of the EU Marie Skłodowska-Curie innovative training network project MENELAOS-NT
- Research focus: Complex-valued deep architectures for SAR data classification and reconstruction

Master of Science (MSc) – Sep 2016 to Sep 2018
K.N. Toosi University of Technology, Tehran, Iran

- Remote Sensing Research Center, Faculty of Geomatics – Remote Sensing Engineering
- Thesis Title: Bag of Visual words Model enhancement for PolSAR Images Classification

Bachelor of Science (BSc) – Sep 2012 to Sep 2016
K.N. Toosi University of Technology, Tehran, Iran

- Faculty of Geodesy and Geomatics Engineering

Fellowships, Awards, and Certificates

- **MSCA Doctoral Scholarship** from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No. 860370, MENELAOS-NT Project (2020-2023)
- Ranked in the highest 1% of the participants for the national university entrance exam of B.Sc. and M.Sc. degrees and got awarded the **national B.Sc. ad M.Sc. university fellowships** at K.N. Toosi University of Technology (2012 and 2016)
- Certificate of the **IEEE GRSS High-Performance and Disruptive Computing in Remote Sensing (HDCRS) 2023** summer school

Publications (+150 citations on Google Scholar)

Selected Journal Papers

- **R. M. Asiyabi,** M. Datcu, A. Anghel and H. Nies, "Complex-Valued End-to-End Deep Network with Coherency Preservation for Complex-Valued SAR Data Reconstruction and Classification," IEEE TGRS - Transactions on Geoscience and Remote Sensing, vol. 61, pp. 1-17, (2023), Art no. 5206417.

- **R. M. Asiyabi** and M. Datcu, "Earth Observation Semantic Data Mining: Latent Dirichlet Allocation-Based Approach," IEEE J-STARS - Journal of Selected Topics in Applied Earth Observations and Remote Sensing, vol. 15, pp. 2607-2620, (2022).

- **R. M. Asiyabi**, M. Sahebi, and A. Ghorbanian, "Segment-based bag of visual words model for urban land cover mapping using polarimetric SAR data," in *Advances in Space Research*, Volume 70, Issue 12, Pages 3784-3797, (2022).

- M. Amani, S. Mehravar, **R. M. Asiyabi**, et al., "Ocean Remote Sensing Techniques and Applications: A Review (Part I and II)," *Water*, 14(21):3401, (2022).

- A. Ghorbanian, S. Zaghian, **R. M. Asiyabi**, M. Amani, A. Mohammadzadeh, and S. Jamali. "Mangrove Ecosystem Mapping Using Sentinel-1 and Sentinel-2 Satellite Images and Random Forest Algorithm in Google Earth Engine," *Remote Sensing* 13, no. 13:2565 (2021).

- **R. M. Asiyabi,** and M. Sahebi, "PolSAR Data Classification using Bag of Visual Words Algorithm," *Journal of Geomatics Science and Technology* 4-5, (2020), (*In Persian*).

- B. Hassani, M. Sahebi, and **R. M. Asiyabi,** "Oil spill four-Class classification using UAVSAR polarimetric data," *Ocean Science Journal* 55, no. 3: 433-443, (2020).

- **R. M. Asiyabi**, M. Datcu, and A. Anghel, "Complex-valued autoencoder-based compression scheme for SAR raw data," *To be Submitted*, (2023).

Selected Conference Papers

- **R. M. Asiyabi**, A. Anghel, A. Focsa, M. Datcu, M. Martone, P. Rizzoli, and E. Imbembo, "On the use of JPEG2000 for SAR raw data compression," *Submitted to EUSAR 2024; 15th European Conference on Synthetic Aperture Radar*, Munich, Germany, (2024).

- **R. M. Asiyabi,** A. Anghel, P. Rizzoli, M. Martone, and M. Datcu, "Complex-Valued Autoencoder for Multi-Polarization SLC SAR Data Compression with Side Information," *IGARSS 2023 - IEEE International Geoscience and Remote Sensing Symposium*, Pasadena, California, pp. 1787-1790, (2023).

- **R. M. Asiyabi,** M. Datcu, A. Anghel and H. Nies, "Complex-Valued Autoencoders with Coherence Preservation for SAR," *EUSAR 2022; 14th European Conference on Synthetic Aperture Radar*, Leipzig, Germany, pp. 1-6, (2022).

- **R. M. Asiyabi,** M. Datcu, H. Nies and A. Anghel, "Complex-Valued Vs. Real-Valued Convolutional Neural Network for PolSAR Data Classification," *IGARSS 2022 - IEEE International Geoscience and Remote Sensing Symposium*, Kuala Lumpur, Malaysia, pp. 421-424, (2022).

- **R. M. Asiyabi** and M. Datcu, "Earth Observation Image Semantics: Latent Dirichlet Allocation Based Information Discovery," *IGARSS 2021 - IEEE International Geoscience and Remote Sensing Symposium*, Brussels, Belgium, pp. 2620-2623, (2021).

Research Projects and Grant Proposal Experiences

- **MENELAOS-NT – Multimodal Environmental Exploration Systems - Novel Technologies,** European Training Network (ETN) H2020-MSCA-ITN project (Grant No. 860370), Role: Early-Stage Researcher (ESR 15), Project goal: The project applies Novel Technologies to realize multimodal – multi sensor data fusion to optimally combine the information, delivered by different sensors (in-situ/remote, optical/non optical) on different scales, with different resolutions and with different reliability, 2019-2024.
- **Adaptive SAR Signal Compression Through Artificial Intelligence (ARTISTE)**, European Space Agency (ESA/ESTEC) project (Contract Nr. ESA AO/1- 11419/22/NL/GLC/my), Role: Key person, Project goal: This project aims to provide artificial intelligent-based solutions for SAR raw data compression for future ESA missions in collaboration with DLR and Airbus teams, 2022-2023.
- Participation in the proposal preparation for the ESA Invitation to Tender (ITT) for OPEN SAR LIBRARY - EXPRO+ (Ref: ESA AO/1-11394/22/I-DT) (2022, Unsuccessful)

Professional Experience

Supervisor of surveying and construction team - 2017 to 2018
Caspian Mode Company, Tehran, Iran
- Engineer of Construction Department and architectural supervisor of different stores (Diesel, Mango, Aldo, Geox, Women' Secret, Springfield, LCW, Flo, and Colin's stores in different locations).

Advertisement Manager and Sales and Marketing Consultant - 2012 to 2017
Behsouzazar Company, Tehran, Iran
- In charge of holding company fair at the 15th International Exhibition of Iran HVAC&R, Tehran International Permanent Fairground - 18- 21 Oct 2016.

Skills

Computer Skills
- **Programming Languages:** Python, R, MATLAB
- **Technical Software:** Sentinel Application Platform (SNAP), Google Earth Engine (GEE), ENVI, PolSARpro, eCognition, PCI Geomatica, Esri ArcGIS, AutoCAD

Other Skills
- Team-working Spirit
- Multi-tasking
- Problem Solving
- Responsible and Reliable
- Leadership and Management
- Communicative
- Motivated and Determined
- Self-learner
- Adaptive and Flexible

Hobbies and Interests

- Traveling
- Workout and Exercise
- Music
- Cultural Exchange
- Basketball
- Reading
- Photography
- Coffee and Café-hopping
- Adventure and Trying New Things

References

Prof. Mihai Datcu- PhD thesis Supervisor

- German Aerospace Center (DLR), Earth Observation Center, Remote Sensing Technology Institute
- Full Professor of Electronics, telecommunications and information technology in the National University of Science and Technology POLITEHNICA Bucharest, Romania
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Prof. Andrei Anghel - PhD thesis Supervisor

- Full Professor of Electronics, telecommunications and information technology in the National University of Science and Technology POLITEHNICA Bucharest, Romania
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