

Siavash Shami
Master's Degree (M.Sc.) in Geodesy
 Faculty of Geodesy and Geomatics Engineering
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Academic Profiles: [Personal Website](#) [ORCID](#) [Web of Science](#) [Scopus](#) [Google Scholar](#) [ResearchGate](#) [Linkedin](#) [Github](#) [Twitter](#)

Biography

Siavash Shami has been completed his Master's Degree (**M.Sc.**) in Geodesy, Faculty of Geodesy and Geomatics Engineering at *K. N. Toosi University of Technology* in 2018. His research concentrates on the areas of Geodesy (Crustal Deformation), Remote Sensing, and Earth Sciences phenomena. He employs Geodetic methodologies, including InSAR and GPS, alongside Geological and Hydrological data, to investigate Natural Hazards. Furthermore, Siavash integrates advanced techniques such as Machine Learning, and Deep Learning to enhance his analysis and understanding of these phenomena. Additionally, he addresses various aspects of InSAR Errors, such as Phase Bias, Interferogram Networks, Reference Point, Atmospheric Delay, and Multi-Looking techniques, to enhance the accuracy and reliability of InSAR analyses. Siavash further conducts research on applications of Remote Sensing, encompassing areas such as Soil Moisture, Water Storage, GroundWater, Precipitation, Air Pollution, Land Use and Land Cover Change, Soil Erosion, Climate Change, Drought, Flood, and Agriculture.

Research Interests

Main Research Topics: *Geodesy, Remote Sensing, Earth Sciences, Natural Hazards, InSAR Errors*

Research Tools: *InSAR, GPS, Google Earth Engine, Machine Learning, Deep Learning*

Research Data: *Remote Sensing, Geological, Hydrological data*

Academic and Professional Experiences

Educational Background

- **M.Sc.** in Geodesy, K. N. Toosi University of Technology (KNTU), Tehran, Iran (**2018**)
 Thesis title: "*A Feasibility Study on the Application of InSAR for Surveying in Open Pit Mines*" [Link](#) (In Persian)
- **B.Sc.** in Surveying Engineering, Eyn Ol Ghozat higher education institute, Mianeh, Iran (**2016**)

Scientific Reviewer for publications of

- **Elsevier:** Gondwana Research (1), Advances in Space Research (1), Remote Sensing Applications: Society and Environment (3)
- **IEEE:** IEEE Access (1)
- **Springer:** Earth Science Informatics (1)
- **Others:** Geography, environment, sustainability (1)

Awards and Honors

- Ranked 1st among B.Sc. students of Surveying Engineering (**2016**)

Professional Experiences

- Collaborating with **Dr. Meisam Amani** for some projects, such as, investigating landslides in New Zealand, investigating displacement of Dam in Canada, Monitoring of shoreline changes in Canada, Monitoring of Open Pit Mine in South Africa using the InSAR technology (**2023-2024**)
In these projects, we used GMTSAR, StaMPS, ISCE, and MintPy software, PS and SBAS algorithm, Sentinel-1 images, and Qgis to monitoring and investigating of displacement
- Collaborating with **Bonyan Zamin Company** for preparing annual displacement maps of Isfahan city in Iran for *Isfahan Municipality* using the InSAR technology and GIS (**2022**)
In this project, we used GMTSAR and StaMPS software, PS algorithm, Sentinel-1 images, and Qgis to preparing annual displacement maps of Isfahan city in Iran

Academic Skills

InSAR

Fields Worked: Plain Deformation (Geological & Hydrological data), Urban Displacement, Displacement of Open Pit Mine, Railway Subsidence, Landslide, Volcano, Earthquake, Fault, Tectonic, Displacement of Salt dome, Displacement of Dam, Displacement of Subway, Displacement of Coastline

Methods Worked: Persistent Scatterer (PS), Small Baseline Subset Algorithm (SBAS), New Small Baseline Subset, Algorithm (NSBAS), DInSAR
Errors of InSAR: Phase Bias, Interferogram Networks, Reference Point, Atmospheric Delay, Multi-Looking
Used Images: Sentinel-1, ENVISAT, ALOS-1/2, ERS-1/2
Used Software: StaMPS/MTI, GMTSAR, MintPy, ISCE, LiCSBAS, SNAP, DORIS, ROI_PAC

Geodesy (Surveying)

Fields Worked: Geodesy (Satellite and Physical geodesy), Surveying, Topography, Leveling
Used Hardware: Total Station, Nivo, Dual Frequency GPS
Used Software: Civil 3D, Global Mapper, Google Earth, RTKLIB

Remote Sensing (Google Earth Engine)

Fields Worked: Soil Moisture (Landsat), Water Storage (GRACE Data), GroundWater (Piezometric Well Data), Precipitation (CHIRPS and TRMM Data), Air Pollution (Sentinel-5 and MODIS Data), Land Cover and Land Use (Sentinel-1/2, Modis, and Landsat Data), Soil Erosion (RUSLE Model), Climate Change (Köppen Data), Drought, Flood, Agriculture

Other Skills

Artificial intelligence: Machine learning, Deep Learning
Microsoft Office: Excel, Powerpoint, Word
Programming: Python
Linux: Ubuntu
GIS: QGIS
Language: Azerbaijani, Persian, English

List of Publications

International Journal Articles (Peer-reviewed)

7. Karami, E., **Shami, S.**, Maghsoudi, Y., Ranjgar, B., & Azadnejad, S. (2025). Investigating the InSAR Phase Bias in the SBAS Algorithm and Its effect on different Landcovers. *IEEE Access*, vol. 13, pp. 82514-82526
Research Article: DOI, WoS, Scopus, Citations (Impact Factor: 3.4 (Q2), CiteScore: 9.8 (Q1), Open Access)
6. Naboureh, A., Li, A., Bian, J., Lei, G., Nan, X., Zhang, Z., **Shami, S.** & Lin, X. (2024). Green space coverage versus air pollution: a cloud-based remote sensing data analysis in Sichuan, Western China. *International Journal of Digital Earth*, 17(1), 2383454
Research Article: DOI, WoS, Scopus, Citations (Impact Factor: 3.7 (Q2), CiteScore: 6.5 (Q1), Open Access)
5. **Shami, S.**, Shahriari, M. A., Nilfouroushan, F., Forghani, N., Salimi, M., & Reshadi, M. A. M. (2024). Surface displacement measurement and modeling of the Shah-Gheyb salt dome in southern Iran using InSAR and machine learning techniques. *International Journal of Applied Earth Observation and Geoinformation*, 132, 104016
Research Article: DOI, WoS, Scopus, Citations (Impact Factor: 7.6 (Q1), CiteScore: 12 (Q1), Open Access)
4. Abdalla, A., **Shami, S.**, Shahriari, M. A., & Azar, M. K. (2024). Estimation of land displacement in East Baton Rouge Parish, Louisiana, using InSAR: Comparisons with GNSS and machine learning models. *The Egyptian Journal of Remote Sensing and Space Sciences*, 27(2), 204-215
Research Article: DOI, WoS, Scopus, Citations (Impact Factor: 4.4 (Q2), CiteScore: 7.1 (Q1), Open Access)
 -These authors contributed equally: Ahmed Abdalla and Siavash Shami
3. Khoshlahjeh Azar, M., **Shami, S.**, Nilfouroushan, F., Salimi, M., Ghayoor Bolorfroshan, M., & Reshadi, M. A. M. (2022). Integrated analysis of Hashtgerd plain deformation, using Sentinel-1 SAR, geological and hydrological data. *Scientific Reports*, 12(1), 21522
Research Article: DOI, WoS, Scopus, Citations (Impact Factor: 4.9 (Q1), CiteScore: 6.9 (Q1), Open Access)
 -These authors contributed equally: Mahdi Khoshlahjeh Azar and Siavash Shami
2. **Shami, S.**, Azar, M. K., Nilfouroushan, F., Salimi, M., & Reshadi, M. A. M. (2022). Assessments of ground subsidence along the railway in the Kashan plain, Iran, using Sentinel-1 data and NSBAS algorithm. *International Journal of Applied Earth Observation and Geoinformation*, 112, 102898
Research Article: DOI, WoS, Scopus, Citations (Impact Factor: 7.6 (Q1), CiteScore: 10.5 (Q1), Open Access)
1. **Shami, S.**, Ranjgar, B., Bian, J., Khoshlahjeh Azar, M., Moghimi, A., Amani, M., & Naboureh, A. (2022). Trends of CO and NO2 Pollutants in Iran during COVID-19 pandemic using Timeseries Sentinel-5 images in Google Earth Engine. *Pollutants*, 2(2), 156-171
Research Article: DOI, WoS, Scopus, Citations (Open Access)
 -The journal did not have an Impact Factor or CiteScore at the time of the article's publication

National Journal Articles (Peer-reviewed)

2. **Shami, S.**, Khoshlahjeh, M., Ghorbani, Z., Moghimi, A., Mohammadzadeh, A., & Sabet Ghadam, S. S. (2021). Evaluation of air pollution contributes for the COVID-19 pandemic in Iran using Sentinel 5 Satellite Data. *Journal of Geomatics Science and Technology*, 10(3), 135-146
Research Article: Link (In Persian, Open Access)

1. **Shami, S.**, Hossainali, MM., & Babaee, S. (2019). Analysis of Large-scale Displacement Using Radar Interferometry Technology in Open-pit Mines (Case Study: Gol Gohar Sirjan Mine). *Geospatial Engineering Journal*, 10(3), 41-51
Review Article: [Link](#) (In Persian, Open Access)

International Books

1. **Shami, S.** (2021). GMTSAR installation and processing Guide - Practical InSAR handbook series
Book: [Link](#) (ebook, Open Access)

National Books

2. Hossainali, MM., & **Shami, S.** (2020). Processing Radar Images using StaMPS. *K.N. TOOSI UNIVERSITY Press*
Book: [Link](#) (ISBN: 978-622-6655-46-0, In Persian)
-These authors contributed equally: Masoud Mashhadi Hossainali and Siavash Shami

1. **Shami, S.**, & Ghorbani, Z. (2019). Processing Radar Images using GMTSAR & SNAP. *Arshadan Press*
Book: [Link](#) (ISBN: 978-622-251-021-3, In Persian, Open Access)

International Conferences

2. **Shami, S.**, & Ghorbani, Z. (2019). Investigating water storage changes in Iran using grace and chirps data in the google earth engine system. *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, 42, 981-984
Conference Paper: [DOI](#), [Scopus](#), [Citations](#) (CiteScore: 1.6 (Q2), Open Access)

1. **Shami, S.**, & Ghorbani, Z. (2019). Influence of wavelength radar images in estimation of open-pit mine displacements using radar interferometry technology (case study: Gol Gohar Sirjan mine). *3rd TRIGGER International Conference*
Conference Poster: [Link](#)

National Conferences

3. **Shami, S.**, Ghorbani, Z., & Abedi, L. (2018). Calculation of the extracted mines volume using DEM obtained from the Envisat radar satellite images (Case study: Gol Gohar Sirjan Mine). *The 4th National Geology and Mining Explorations Symposium*
Conference Presentation: [Link](#) (In Persian, Open Access)

2. **Shami, S.**, Ghorbani, Z., & Abedi, L. (2018). Persistent Scatterers Time series analysis of radar interferometry to determine the rate subsidence of areas around the open pit mines (Case study: Gol Gohar Sirjan Mine). *The 4th National Geology and Mining Explorations Symposium*
Conference Poster: [Link](#) (In Persian)

1. **Shami, S.**, & Hossainali, MM. (2018). Analysis of the effect of temporal and spatial baseline of radar images on the amount of coherence for detecting large-scale displacement gradients using interferometric synthetic aperture radar (Case study: Gol Gohar Sirjan Mine). *Geomatics and GIT 97*
Conference Poster: [Link](#) (In Persian)

* The Impact Factor, CiteScore and Q-value are based on the publication date of the article

Statistics

Total Publications: 17 | International Journal Articles: 7 | National Journal Articles: 2 | International Books: 1 | National Books: 2 | International Conferences: 2 | National Conferences: 3