europass Curriculum vitae

PERSONAL INFORMATION

Alireza Hamoudzadeh

Rome, Italy

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http://alireza-hzd.github.io

Gender Male | | Nationality Iranian

WORK EXPERIENCE

01/07/2024 – 30/06/2025

Post-Doctoral Researcher at GRAW Project, funded by the Italian Space Agency (ASI)

Employer: Sapienza University of Rome, Rome, Italy

Main activities and responsibilities:
- Responsible of the hydrological-drought monitoring working group, which involves defining and developing workflows for monitoring water levels and the extent of Italian lakes and water reservoirs using satellite altimetric data from GEDI, SWOT, Sentinel 1, 2, and COSMO-SkyMed.
- Member of the agricultural-drought monitoring working group, which includes developing workflows for handling, preprocessing, orthorectifying, and analyzing PRISMA hyperspectral imagery to monitor the effects of agricultural drought on Durum wheat fields in Italy.

01/07/2021 – 28/02/2022

Special Project Supervisor

Employer: Faam Infrastructure Company, Tehran, Iran

Main activities and responsibilities: GeoDatabase design and cadastral map updates for rural agricultural areas.

MAIN RESEARCH TOPICS

Spaceborne LiDARs: – GEDI (Quality assessment, global water level and glacier monitoring in GEE), ICESat-2 (ATL03, ATL06 for bathymetry and glacier monitoring)

Spaceborne SAR and RADAR: – COSMO-SkyMed (inland water extent mapping), SWOT (water level monitoring, gravity gradient analysis over high altitude water bodies), Sentinel-1 (ship detection, surface water analysis)

Spaceborne Multispectral & Hyperspectral: – Sentinel-2, PRISMA (orthorectification, spectral signature analysis for agricultural damage assessment)

EDUCATION AND TRAINING

01/01/2022 – 23/01/2025

Ph.D. in Infrastructure and Transportation, Geomatics curriculum

Organisation: Sapienza University of Rome, Rome, Italy

Thesis: Earth Observation big data exploitation for continuous monitoring of water reservoirs and glaciers.

20/09/2018 – 30/06/2021

M.Sc. in Geographic Information Systems (GIS)

Organisation: Shahid Rajaee University, Tehran, Iran

Thesis: User Behavior Analysis Based on Users' Spatial Background.

20/09/2014 – 20/05/2018

B.Sc. in Geomatics Engineering

Organisation: Jundi-Shapur University of Technology, Dezful, Iran

Thesis: Analysis of the vegetation growth in the vicinity of Dez River.

ACADEMIC DIDACTIC EXPERIENCES

a.y. - 2024-2025

Co-tutor of 'Remote Sensing and Geo Big Data' course at Sapienza University of Rome

Responsible for the practical sessions on the analysis of remote sensing imagery with Google Earth Engine and Agisoft Metashape

01/07/2023 – Current

Thesis co-supervisor at Sapienza University of Rome

1 Ph.D. in Italian National Ph.D. In Earth Observation (ongoing) and 3 Master's theses in the fields of Remote Sensing applied to environmental parameters monitoring

PERSONAL SKILLS

Mother tongue: Persian

Other languages

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C2	C2	C2	C2	C2
Italian	A2	B1	A2	A2	A2

Levels: A1 and A2: Basic user – B1 and B2: Independent user – C1 and C2: Proficient user
Common European Framework of Reference for Languages

Informatic Skills

Programming: Python (SciPy, NumPy, matplotlib, seaborn, Icepyx, xarray, pandas, geopandas, scikit-learn, TensorFlow, OpenCV), JavaScript, MATLAB, LaTeX
Databases: SQL, PostgreSQL
Cloud Computing: Google Earth Engine (JS API), Microsoft Planetary Computer
Web Development: HTML, CSS, JavaScript, Leaflet
Software: ArcGIS, ENVI, QGIS, Agisoft Metashape, PostGIS
Version Control: GitHub

ADDITIONAL INFORMATION

Publications

Journal Articles

- A. Hamoudzadeh, R. Ravanelli, and M. Crespi, Large-scale monitoring of inland water surface levels with GEDI data: an operational cloud-based approach in Google Earth Engine," GIScience & Remote Sensing, vol. 62, no. 1, p. 2483027, 2025. doi: https://doi.org/10.1080/15481603.2025.2483027
- A. Hamoudzadeh, R. Ravanelli, and M. Crespi, Monitoring Alpine glaciers morphological changes using GEDI: preliminary evaluation of potentials and challenges," 2025, Under Review.
- A. Hamoudzadeh, R. Ravanelli, and M. Crespi, SWOT Level 2 Lake Single-Pass Product: The L2_HR_LakeSP Data Preliminary Analysis for Water Level Monitoring," Remote Sensing, vol. 16, no. 7, p. 1244, 2024. doi: https://doi.org/10.3390/rs16071244
- A. Hamoudzadeh, R. Ravanelli, and M. Crespi, GEDI data within Google Earth Engine: Preliminary analysis of a resource for inland surface water monitoring," The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences, vol. XLVIII-M-1-2023, pp. 131–136, 2023. doi: https://doi.org/10.5194/isprs-archives-XLVIII-M-1-2023-131-2023
- A. Hamoudzadeh and S. Behzadi, Evaluation of effective factors on air pollution using optimized cellular automata. A case study of Tehran," Journal of Engineering Research, 2021. doi: https://doi.org/10.36909/jer.13749
- A. Hamoudzadeh and S. Behzadi, Predicting user's next location using machine learning algorithms," Spatial Information Research, vol. 29, no. 3, pp. 379–387, 2021. doi: https://doi.org/10.1007/s41324-020-00358-2

Conference Proceedings

- A. Hamoudzadeh, R. Ravanelli, and M. Crespi, Glacier Monitoring in the Alps: Leveraging GEDI Altimetry for Surface Elevation Change Detection", EGU General Assembly 2025, Vienna, Austria, 27 Apr–2 May 2025, EGU25-12715. doi: https://doi.org/10.5194/egusphere-egu25-12715
- A. Hamoudzadeh, R. Ravanelli, L. Ranaldi, et al., "Water-level monitoring of Italian lakes through GEDI and SWOT," in International Conference on Advanced Remote Sensing (ICARS) (Barcelona, Spain, 2025). doi: https://sciforum.net/paper/view/21610
- A. Hamoudzadeh, R. Ravanelli, M. Crespi, "Inland water 3D monitoring: GEDI and SWOT missions potential and challenges," in International Conference on Advanced Remote Sensing (ICARS) (Barcelona, Spain, 2025). doi: https://sciforum.net/paper/view/21570
- F. Bocchino, G. Graldi, A. Hamoudzadeh, et al., "Preliminary Analysis of PRISMA Imagery for Agricultural Drought Assessment in Italy," in International Conference on Advanced Remote Sensing (ICARS) (Barcelona, Spain, 2025). doi: https://sciforum.net/paper/view/21613
- L. Ranaldi, A. Hamoudzadeh, F. Bocchino, et al., "Monitoring of Surface and Water Levels of Inland Resources in Central Italy Using COSMO-SkyMed Imagery," in International Conference on Advanced Remote Sensing (ICARS) (Barcelona, Spain, 2025). doi: https://sciforum.net/paper/view/21609
- A. Hamoudzadeh, R. Ravanelli, and M. Crespi, Italian lakes water level monitoring through GEDI altimetric data within Google Earth Engine: a preliminary analysis," in XXVIII General Assembly of the International Union of Geodesy and Geophysics (IUGG) (Berlin 2023). doi: https://doi.org/10.57757/IUGG23-3886
- A. Hamoudzadeh, R. Ravanelli, and M. Crespi, Glacier Monitoring Using GEDI Data in Google Earth Engine: Outlier Removal and Accuracy Assessment," EGU General Assembly 2024, Vienna, Austria, 14–19 Apr 2024. doi: https://doi.org/10.5194/egusphere-egu24-10176
- A. Hamoudzadeh, R. Ravanelli, and M. Crespi, GEDI data within Google Earth Engine: Potentials and analysis for inland surface water monitoring," EGU General Assembly 2023, Vienna, Austria, 24–28 Apr 2023. doi: https://doi.org/10.5194/egusphere-egu23-15083

Books and Chapters

- L. Ranaldi, A. Hamoudzadeh, F. Bocchino, et al., "Exploring Water Reservoir Dynamics in Central Italy: A Preliminary Workflow for COSMO-SkyMed Imagery-Based Water Segmentation," in Telerilevamento applicato alla gestione delle risorse idriche, 2024.

Honours and awards

- Selected participant, Google Geo for Good Summit and GEE workshops, San Francisco, USA (2023).
- Second place in the 5th Cassini Hackathon for SAR 4 SAR - Revolutionizing search and rescue operations in the Mediterranean Sea with Sentinel 1 and 2 imagery: Combining Automatic Identification System (AIS) trajectory data with ship detections from Sentinel-1 (based on bright objects at sea) and Sentinel-2 (based on color contrast in the water) to identify anomalous or unregistered maritime activities (2023)
- Grant for young researchers from Sapienza University of Rome for the project "Global monitoring of inland water surface with GEDI geo big data using Google Earth Engine" (2022).
- Doctoral Program Fellowship and Scholarship from Sapienza University of Rome (2022).

Conferences and seminars

- 2025 General Assembly of the European Geosciences Union (EGU), Vienna, Austria [27/04/2025 - 02/05/2025] (Poster presentation).
- International Conference on Geographical Information Systems Theory, Applications and Management (GISTAM), Porto, Portugal [01/04/2025 - 04/04/2025] (Oral Presentation).
- International Conference on Advanced Remote Sensing (ICARS 2025), Barcelona, Spain [25/03/2025 - 30/03/2025] (Oral Presentation).
- 2GG: 2 Giorni di Geomatica, L'Aquila, Italy [15/07/2024 - 16/07/2024] (Oral Presentation).
- 2024 General Assembly of the European Geosciences Union (EGU), Vienna, Austria [14/04/2024 - 19/04/2024] (Oral Presentation).
- 2GG: 2 Giorni di Geomatica, Arezzo, Italy [25/09/2023 - 26/09/2023] (Oral Presentation).
- The 28th International Union of Geodesy and Geophysics (IUGG), Berlin, Germany [10/07/2023 - 17/07/2023] (Oral Presentation).
- The 39th International Symposium on Remote Sensing of Environment (ISRSE, ISPRS), Antalya, Turkey [23/04/2023 - 28/04/2023] (Oral Presentation).
- The 41st European Association of Remote Sensing Laboratories (EARSEL), Paphos, Cyprus [12/09/2022 - 17/09/2022] (Oral Presentation).

Workshops
- Earth Engine Workshop at the United Nations FAO Headquarters, Rome, Italy [19/02/2024 - 20/02/2024].
- LIDAR, SAR, and GNSS Seismology (GATHERS Advanced School 2024), Rome, Italy [12/02/2024 - 16/02/2024].
- Google Earth Engine Python and JavaScript workshop, Google Geo for Good Summit and GEE workshops, San Francisco, USA [09/10/2023 - 12/10/2023].

Autorizzo il trattamento dei miei dati personali ai sensi del Decreto Legislativo 30 giugno 2003, n. 196 "Codice in materia di protezione dei dati personali.
Io sottoscritto dichiaro di essere consapevole che il presente curriculum vitae sarà pubblicato sul sito istituzionale dell'Ateneo, nella Sezione "Amministrazione trasparente", nelle modalità e per la durata prevista dal d.lgs. n. 33/2013, art. 15.

Date: 16/08/2025

Alireza Hamoudzadeh