

Amirpasha Mozaffari

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Email: a.mozaffari@fz-juelich.de

Website: amirpasha.me

Address: Jülich 52428

Phone: +49 172 9541722

Twitter: [@apmozaffari](https://twitter.com/apmozaffari)

Linkedin: [@amirpasha-mozaffari](https://www.linkedin.com/in/amirpasha-mozaffari)

Research interests Data Science, Machine Learning, Geosciences, Exascale machines / HPC, Open science, Data Management

Education

RWTH Aachen University Aachen, Germany
PhD in Geoscience, 02.2015 – Present
Towards 3D crosshole GPR FWI
Mentors: Prof. Dr. Klaus Reicherter & Prof. Jan van der Kruk.

Stuttgart University Stuttgart, Germany
M.Sc in Water Resources Eng.& Man. 09-2011 – 12.2014
Mentor: Prof. Johan Alexander Huisman

Amirkabir University Tehran, Iran
BSc. Eng. in Mining Engineering 09.2007 – 06.2011
Mentor: Prof. Morteza Osanloo

Research experience

Data & Workflow Manager Jülich, Germany
Jülich Supercomputing Center (JSC) 05.2019 – Present
Workflow specialist of ML. group in air quality and weather forecast / workflow developer for HPC system /Coordinating multiple computing projects / website development and maintenance

Research Assistant Jülich, Germany
IBG-3: Agrosphäre 02.2015 – 05.2019
Numerical and statistical analysis of complex environmental data (Synthetic and Experimental data) / Development and optimization of high-performance numerical modelling algorithms /Developing analytical solutions for shortcomings in practical environmental problems

Student assistant Jülich, Germany
IBG-3: Agrosphäre 05.2014 – 01.2015
Improving the performance of environmental monitoring systems by numerical modeling and sensitivity analysis

Selected Publications

2.5D crosshole GPR full-waveform inversion with synthetic and measured data
Mozaffari, A., Klotzsche, A., Warren, C., He, G., Giannopoulos, A., Vereecken, & H., van der Kruk, J.

Geophysics, 2020.

Towards 3D full-waveform inversion of crosshole GPR data

Mozaffari, A., Klotzsche, A., He, G., Warren, C., Giannopoulos, A., Vereecken, H., & van der Kruk, J.

International Conference on Ground Penetrating Radar, GPR 2016.

Can deep learning beat numerical weather prediction?

Schultz, M., Betancourt, C., Gong, B., Kleinert, F., Langguth, M., Leufen, L., **Mozaffari, A.**, & Stadtler, S.

Philosophical Transactions of The Royal Society A Mathematical Physical and Engineering Sciences, 2021.

GPR full-waveform inversion, recent developments, and future opportunities

van der Kruk, J., Liu, T., **Mozaffari, A.**, Gueting, N., Klotzsche, A., Vereecken, H., Warren, C., & Giannopoulos, A.

International Conference on Ground Penetrating Radar, GPR 2018.

Crosshole GPR full-waveform inversion and waveguide amplitude analysis: Recent developments and new challenges

Klotzsche, A., van der Kruk, J., **Mozaffari, A.**, Gueting, N., & Vereecken, H.

International Workshop on Advanced Ground Penetrating Radar, IWAGPR 2015.

Skills

Computer Science

Programming : Python (TF., PyTorch, Xarray, Dask, mpi4py..), Shell, Matlab, C, HTML, git, Containers (Docker, Singularity)

Distributed Sys.: MPI, OpenMP, multithreading

Languages

Farsi/Persian (fluent), English (advanced), German (intermediate)

Talks and tutorials

FAIRness in the multi-services data infrastructure of the Tropospheric Ozone Assessment Report (TOAR) and Artificial Intelligence for Air Quality (IntelliAQ) project 03.2020

Poster presentation in RDA Virtual Plenary 15, Melbourne , Australia

On the use of containers for machine learning and visualization workflows on JUWELS 02.2020

Poster presentation in NIC Symposium 2020, Jülich , Germany

A detailed 3D crosshole GPR Antenna model 09.2017

Presentation in GPR round table, Aachen , Germany

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| Towards 3D crosshole GPR FWI | 12.2016 |
| Poster presentation in AGU fall meeting , San Francisco, United States | |
| 2.5D crosshole GPR FWI | 05.2016 |
| Presentation in 16th international GPR conference, Hong Kong, Hong Kong | |
| Towards 3D crosshole GPR FWI | 02.2016 |
| Presentation in near surface FWI workshop, Zürich , Switzerland | |
| Towards 3D crosshole GPR FWI | 09.2015 |
| Presentation in GPR round table, Aachen , Germany | |