

# Amirpasha Mozaffari

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**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**

**3-D Electromagnetic Modeling Explains Apparent-Velocity Increase in Crosshole GPR Data-Borehole Fluid Effect Correction Method Enables to Incorporating High-Angle Traveltime Data**

**Mozaffari, A.**, Klotzsche, A., Zhou, Z., Vereecken, & H., van der Kruk, J.  
*IEEE TGRS, 2021.*

**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.**, & Stadler, 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
- 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