Diego Domenzain

resume

personal

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about me

I am a Mathematician with keen interest on applied problems and physics. Currently, I design better ways to explore the interior of the Earth at shallow depths. In order to achieve this I use numerical modeling of partial differential equations, mathematical non-linear optimization, signal processing (in time and frequency), and high performance computing.

professional experience

Computational Geophysicist — **2023 – now**

Seequent - AGS, DK

Design and implementation of a 3D visualization scheme for DC data measured in arbitrary spatial configurations. Deployment and maintenance of parallel high performance computing algorithms in Azure, and of machine learning models for electromagnetic time-domain data quality control.

Postdoctoral Researcher — **2021 – 2023**

Aarhus Universitet, DK

Design and implementation of a 3D DC inversion algorithm capable of handling two orders of magnitude more data than previous schemes. Worked closely with the design of a novel survey instrument to achieve the needs of our industry partner. The project specifically aimed (and was successful) at delineating the 3D spread of a contaminant-remediation agent in the subsurface.

Postdoctoral Researcher — **2020 – 2021**

Colorado School of Mines, USA

Design and implementation of a multi-physics joint inversion of electromagnetic waves (radar) and DC data acquired at the surface. The result of this work was the first successful surface-acquired full-waveform inversion of radar data. Also developed a machine learning method for enhancing resolution of recovered parameters using remote sensing data.

PhD Researcher — **2015 – 2020**

Boise State University, USA

Joined an existing NSF funded project aiming to join DC voltages and electromagnetic radar data in order to recover 2D subsurface electrical parameters. Successfully designed and developed such a scheme with the added bonus of a new electrical resistivity inversion algorithm capable of handling large amounts of data using low memory requirements. Moreover, through the use of numerical curvature algorithms it was possible to enhance resolution in areas of nearly zero sensitivity.

coding

Languages	Fortran, C/C++, Julia, Python, Matlab, Bash, PowerShell, Latex, PyTorch, TensorFlow, Azure API.