

Email: [reisandreluis@gmail.com](mailto:reisandreluis@gmail.com)  
ORCID: [0000-0002-2225-5106](https://orcid.org/0000-0002-2225-5106)  
GitHub: [@andrelreis](https://github.com/andrelreis)  
LattesID: [lattes.cnpq.br/1075610796165589](https://lattes.cnpq.br/1075610796165589)  
Research Group: [pinga-lab.org/people/andre](https://pinga-lab.org/people/andre)

Departamento de Geologia Aplicada  
Faculdade de Geologia  
Universidade do Estado do Rio de Janeiro (UERJ)  
Rua São Francisco Xavier, 524. Rio de Janeiro - RJ. Brazil

Brief Description

I am currently an Adjunct Professor in the Department of Applied Geology at the Geology School of Rio de Janeiro State University. I am also leading an Exploration Geophysics Laboratory. My research focuses on developing methods for processing and interpreting potential fields. I am experienced in applying Scanning Magnetic Microscopy to characterize magnetic materials and rock samples, proposing new technologies in Paleomagnetism and Rock magnetism. I have interests in Computational and Theoretical Geophysics.

Education

2016 - 2020	<b>PhD in Geophysics</b> , Observatório Nacional (ON), Brazil
2014 - 2016	<b>MSc in Geophysics</b> , Observatório Nacional (ON), Brazil
2007 - 2012	<b>BSc in Physics</b> , Universidade do Estado do Rio de Janeiro (UERJ), Brazil

Work

2021 - on	<b>Adjunct Professor</b> , Universidade do Estado do Rio de Janeiro (UERJ), Brazil
2020 - 2021	<b>Postdoctoral Researcher</b> , Observatório Nacional (ON), Brazil
2013 - 2014	<b>Technician</b> , Universidade Estadual do Norte Fluminense (UENF), Brazil
2007 - 2009	<b>Scientific Initiation</b> , Centro Brasileiro de Pesquisas Físicas (CBPF), Brazil

Awards and Scholarships

2020 - 2021	<b>Postdoctoral Fellowship</b> Centro Nacional de Desenvolvimento Científico e Tecnológico (CNPq) Observatório Nacional (ON), Brazil
2016 - 2020	<b>PhD Scholarship</b> Centro Nacional de Desenvolvimento Científico e Tecnológico (CNPq) Observatório Nacional (ON), Brazil
2014 - 2016	<b>MSc Scholarship</b> Centro Nacional de Desenvolvimento Científico e Tecnológico (CNPq) Observatório Nacional (ON), Brazil
2007 - 2009	<b>Scientific Initiation Scholarship</b> Centro Nacional de Desenvolvimento Científico e Tecnológico (CNPq) Universidade do Estado do Rio de Janeiro (UERJ), Brazil

Educational Resources

2021 - on	<b>Geofísica I</b> , GitHub: <a href="https://github.com/andrelreis/geofisica1">andrelreis/geofisica1</a>
2021 - on	<b>Geofísica II</b> , GitHub: <a href="https://github.com/andrelreis/geofisica2">andrelreis/geofisica2</a>
2023 - on	<b>Introdução ao Processamento Sísmico</b> , GitHub: <a href="https://github.com/andrelreis/processamento-sismico">andrelreis/processamento-sismico</a>
2021 - on	<b>Inversão de Dados Geofísicos</b> , GitHub: <a href="https://github.com/andrelreis/introducao-inversao">andrelreis/introducao-inversao</a>
2021 - 2021	<b>Métodos Potenciais</b> , GitHub: <a href="https://github.com/andrelreis/metodos-potenciais">andrelreis/metodos-potenciais</a>

## Projects and Grants

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2024	<b>Métodos computacionalmente eficientes para a descrição magnética de amostras de rocha em escala micrométrica</b> Fundação de Amparo à Pesquisa do Rio de Janeiro (FAPERJ)
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## Conference Participations

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2019	<b>Equivalent layer technique for estimating magnetization direction</b> SEG Annual Meeting, San Antonio, TX - USA
2017	<b>SED for optimal acquisition design and sensor-to-sample distance applied to scanning magnetic microscopy</b> Bi-annual meeting of the Latinmag, Querétaro - México
2016	<b>Impact of the sensor area, acquisition design and position noise on the estimation of the magnetization distribution within a rectangular rock sample</b> AGU Fall Meeting, San Francisco, CA - USA

## Presentations

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2023	<b>Teoria do Potencial Aplicada: uma contribuição para a descrição de rochas ígneas em bacias sedimentares</b> X SAGEO-UERJ, <i>Invited Speaker</i> , DOI: <a href="https://doi.org/10.6084/m9.figshare.24156039.v1">10.6084/m9.figshare.24156039.v1</a>
2020	<b>Inversão de dados magnéticos para estimar as três componentes do campo</b> Jornada PCI-ON, <i>Invited Speaker</i> , DOI: <a href="https://doi.org/10.6084/m9.figshare.13256657.v1">10.6084/m9.figshare.13256657.v1</a>
2019	<b>Equivalent layer technique for estimating magnetization direction</b> SEG Annual Meeting, <i>Oral presentation</i> , DOI: <a href="https://doi.org/10.6084/m9.figshare.9899321.v1">10.6084/m9.figshare.9899321.v1</a>
2017	<b>SED for optimal acquisition design and sensor-to-sample distance applied to Scanning Magnetic Microscopy</b> Bi-annual Meeting of the Latinmag, <i>Oral presentation</i> , DOI: <a href="https://doi.org/10.6084/m9.figshare.9899282.v1">10.6084/m9.figshare.9899282.v1</a>
2016	<b>Impact of the sensor area, acquisition design and position noise on the estimation of the magnetization distribution within a rectangular rock sample</b> AGU Fall Meeting, <i>Poster presentation</i> , DOI: <a href="https://doi.org/10.6084/m9.figshare.9899213.v1">10.6084/m9.figshare.9899213.v1</a>

- 2023      **Computational aspects of the equivalent-layer technique: review**  
Oliveira Jr, VC; Takahashi, D; **Reis, ALA**; Barbosa, VCF  
*Frontiers in Earth Sciences*, DOI: [10.3389/feart.2023.1253148](https://doi.org/10.3389/feart.2023.1253148)
- 2023      **Construction of a Hall effect scanning magnetic microscope using permanent magnets for characterization of rock samples**  
Araujo, JFDF; **Reis, ALA**; Yokoyama, E; Medina, CD; Osorio, FG; Luz-Lima, C; De Falco, A; Lima, CDA; Silva, JFC; Sinimbu, LIM; Gutierrez, FV; Pottker, WE; La Porta, FA; Mendoza, LAF; Tahir; Del Rosso, T; Bruno, AC  
*Journal of Magnetism and Magnetic Materials*, DOI: [10.1016/j.jmmm.2022.170304](https://doi.org/10.1016/j.jmmm.2022.170304)
- 2022      **Spinel nanoparticles characterization by inverting scanning magnetic microscope maps**  
Loreto, JM; **Reis, ALA**; Loreto, RP; Labre, C; Chaves, JF; Lima, CDA; Bruno, AC; Luz-Lima, C; Merino, ILC; Saitovitch-Baggio, E; Solorzano, G; Araujo, JFDF  
*Ceramics International*, DOI: [10.1016/j.ceramint.2022.04.149](https://doi.org/10.1016/j.ceramint.2022.04.149)
- 2021      **Detecting surface-breaking flaws with a Hall effect gradiometric sensor**  
Junior, EBM; Osorio, FG; Gutierrez, FV; Del Rosso, T; Tahir; Mendoza, LAF; Luz-Lima, C; Yokoyama, E; **Reis, ALA**; Perez, G; Loreto, JM; Bruno, AC; Araujo, JFDF  
*Measurement*, DOI: [10.1016/j.measurement.2020.108808](https://doi.org/10.1016/j.measurement.2020.108808)
- 2020      **Generalized positivity constraint on magnetic equivalent layers**  
**Reis, ALA**; Oliveira Jr, VC; Barbosa, VCF  
*Geophysics*, DOI: [10.1190/GEO2019-0706.1](https://doi.org/10.1190/GEO2019-0706.1)
- 2019      **Characterizing Complex Mineral Structures in Thin Sections of Geological Samples with a Scanning Hall Effect Microscope**  
Araujo, JFDF; **Reis, ALA**; Oliveira Jr, VC; Santo, AF; Luz-Lima, C; Yokoyama, E; Mendoza, LAF; Pereira, JMB; Bruno, AC  
*Sensors*, DOI: [10.3390/s19071636](https://doi.org/10.3390/s19071636)
- 2019      **Scanning Magnetic Microscope Using a Gradiometric Configuration for Characterization of Rock Samples**  
Araujo, JFDF; **Reis, ALA**; Correa, AAP; Yokoyama, E; Oliveira Jr, VC; Mendoza, LAF; Pacheco, MAC; Luz-Lima, C; Santo, AF; Osorio, FG; Brito, GE; Araujo, WWR; Tahir; Bruno, AC; Del Rosso, T  
*Materials*, DOI: [10.3390/ma12244154](https://doi.org/10.3390/ma12244154)
- 2016      **Estimating the magnetization distribution within rectangular rock samples**  
**Reis, ALA**; Oliveira Jr, VC; Yokoyama, E; Bruno, AC; Pereira, JMB  
*Geochemistry, Geophysics, Geosystems*, DOI: [10.1002/2016GC006329](https://doi.org/10.1002/2016GC006329)

## Defense Committee Participations

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2023	<b>Lanna Isabely Morais Sinimbu</b> MSc defense Pontifícia Universidade Católica do Rio de Janeiro (PUC-Rio)
2023	<b>Victor Lebre Fiaux Rodrigues</b> MSc defense Universidade do Estado do Rio de Janeiro (UERJ)
2023	<b>Leonardo Campos João</b> MSc defense Universidade do Estado do Rio de Janeiro (UERJ)
2023	<b>Renato Mota Xavier de Meneses</b> PhD defense Universidade Federal Fluminense (UFF)
2023	<b>Victor Lebre Fiaux Rodrigues</b> MSc qualifying Universidade do Estado do Rio de Janeiro (UERJ)
2022	<b>Rômulo Rodrigues de Oliveira</b> MSc defense Universidade Federal Fluminense (UFF)
2022	<b>Guilherme Zequini Gomes</b> MSc defense Universidade do Estado do Rio de Janeiro (UERJ)
2021	<b>Bruno Lima de Freitas</b> Undergraduate thesis defense Universidade Federal Fluminense (UFF)
2020	<b>Allan Soares Ramalho</b> Undergraduate thesis defense Universidade Federal Fluminense (UFF)
2020	<b>Shayane Paes Gonzalez</b> PhD qualifying Universidade Federal Fluminense (UFF)

## Technical Skills

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<b>Programming</b>	Python, FORTRAN
<b>Markup</b>	Markdown, LaTeX
<b>Graphics</b>	InkScape, GIMP

## Languages

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<b>Portuguese</b>	Native
<b>English</b>	Advanced
<b>Italian</b>	Begginer
<b>Spanish</b>	Begginer