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Instituto de Astronomia, Geofísica e Ciências Atmosféricas

Departamento de Geofísica

Universidade de São Paulo

Professional Appointments

- 2023–on **Professor Doutor**, Universidade de São Paulo, Brazil
- 2019–2023 **Lecturer**, University of Liverpool, UK
- 2017–2019 **Visiting Researcher**, University of Hawai'i at Mānoa, USA
- 2014–2018 **Professor Assistente**, Universidade do Estado do Rio de Janeiro, Brazil

Community Service

- 2024–on **Embaixador**, Rede Brasileira de Reprodutibilidade, www.reprodutibilidade.org
- 2024–on **Advisory Council Member**, EarthArXiv, eartharxiv.org
- 2022–on **Board Member**, Software Underground, softwareunderground.org
- 2022–2023 **Advisory Committee Member**, pyOpenSci, www.pyopensci.org
- 2019–2022 **Topic Editor**, Journal of Open Source Software, joss.theoj.org

Education

- 2011–2016 **PhD in Geophysics**, Observatório Nacional, Brazil. doi:[10.6084/m9.figshare.16883689](https://doi.org/10.6084/m9.figshare.16883689)
- 2010–2011 **MSc in Geophysics**, Observatório Nacional, Brazil. doi:[10.6084/m9.figshare.16882300](https://doi.org/10.6084/m9.figshare.16882300)
- 2004–2009 **BSc in Geophysics**, Universidade de São Paulo, Brazil. doi:[10.6084/m9.figshare.963547](https://doi.org/10.6084/m9.figshare.963547)

Open Research Software

- 2010–on **Fatiando a Terra** | www.fatiando.org
Python tools for geophysical data processing, forward modeling, and inversion
Role: Project founder, core developer, Steering Council Member
- 2017–on **The Generic Mapping Tools (GMT)** | www.generic-mapping-tools.org
A data processing and mapping toolbox for the Earth, Ocean, and Planetary Science
Role: Community stewardship advisor, set up the website + forum + GitHub workflow
- 2022–on **xlandsat** | www.compgeolab.org/xlandsat
Load Landsat remote sensing scenes in Python and xarray
Role: Creator and sole developer
- 2017–2021 **PyGMT** | www.pygmt.org
A Python interface for the Generic Mapping Tools
Role: Project founder, developer, advisor
- 2009–2016 **Tesseroids** | tesseroids.leouieda.com
Forward modeling of gravitational fields in spherical coordinates
Role: Creator and sole developer

Open Educational Resources

- 2022 **A Quick Introduction to Machine Learning.**  [leouieda/ml-intro](https://github.com/leouieda/ml-intro).
- 2023 **Remote Sensing with Python.**  [leouieda/remote-sensing](https://github.com/leouieda/remote-sensing).
- 2023 **Lithosphere Dynamics with Python.**  [leouieda/lithosphere](https://github.com/leouieda/lithosphere).
- 2022 **Terrestrial Gravimetry with Python.**  [leouieda/gravity-processing](https://github.com/leouieda/gravity-processing).

Grants and Fellowships



- 2022-on **Towards individual-grain paleomagnetism: Translating regional-scale geophysics to the nascent field of magnetic microscopy.**
Royal Society. [Doolittle, J](#) (PI); Trindade, RIF. Award: [IES\R3\213141](#)
- 2020-on **A Sustainable Plan for the Future of the Generic Mapping Tools.**
NSF-EAR. Wessel, P (PI); [Doolittle, J](#). Award: [1948602](#).
- 2020-2023 **SSI Fellowship Programme.**
Software Sustainability Institute. [Doolittle, J](#) (PI). Award: [software.ac.uk/about/fellows](#)
- 2018-2024 **The EarthScope/GMT Analysis and Visualization Toolbox.**
NSF-EAR. Wessel, P (PI); [Doolittle, J](#); Smith-Konter, B. Award: [1829371](#).

Selected Invited Presentations

- 2021 **Design useful tools that do one thing well and work together: rediscovering the UNIX philosophy while building the Fatiando a Terra project.**
AGU 2021. [Doolittle, J](#); Li, L; Soler, SR; Pesce, A. [🔗 fatiando/agu2021](#).
- Open-science for gravimetry: tools, challenges, and opportunities.**
GFZ Helmholtz Centre Potsdam. [Doolittle, J](#); Soler, SR; Pesce, A. [🔗 leouieda/2021-06-22-gfz](#).
- Fatiando a Terra: Open-source tools for geophysics.**
Geophysical Society of Houston. [Doolittle, J](#); Soler, SR; Pesce, A. [🔗 fatiando/2021-gsh](#).
- 2020 **Geophysical research powered by open-source.**
Christian Albrechts Universität zu Kiel. [Doolittle, J](#). [🔗 leouieda/2020-07-01-kiel](#).

Publication Highlights

- 2025 **Euler inversion: Locating sources of potential-field data through inversion of Euler's homogeneity equation.**
[Doolittle, J](#); Souza-Junior, GF; Uppal, I; Oliveira Jr, VC. EarthArXiv. doi:[10.31223/X5T41M](#)
Open science: [🔗 compgeolab/euler-inversion](#) | [📄](#) doi:[10.6084/m9.figshare.26384140](#)
- 2024 **Full vector inversion of magnetic microscopy images using Euler deconvolution as prior information.**
Souza-Junior, GF; [Doolittle, J](#); *et al.* Geochemistry, Geophysics, Geosystems. doi:[10.1029/2023GC011082](#)
Open science: [🔗 compgeolab/micromag-euler-dipole](#) | [📄](#) doi:[10.6084/m9.figshare.22672978](#)
- 2021 **Gradient-boosted equivalent sources.**
Soler, SR; [Doolittle, J](#). Geophysical Journal International. doi:[10.1093/gji/ggab297](#)
Open science: [🔗 compgeolab/eq1-gradient-boosted](#) | [📄](#) doi:[10.6084/m9.figshare.13604360](#)
- 2020 **Pooch: A friend to fetch your data files.**
[Doolittle, J](#); Soler, SR; Rampin, R; van Kemenade, H; *et al.* Journal of Open Source Software. doi:[10.21105/joss.01943](#)
Open science: [🔗 fatiando/pooch](#) | [📄](#) doi:[10.5281/zenodo.3515030](#)
- 2019 **The Generic Mapping Tools, Version 6.**
Wessel, P; Luis, J; [Doolittle, J](#); *et al.* Geochemistry, Geophysics, Geosystems. doi:[10.1029/2019GC008515](#)
Open science: [🔗 GenericMappingTools/gmt](#)
- 2019 **Gravitational field calculation in spherical coordinates using variable densities in depth.**
Soler, SR; Pesce, A; Gimenez, ME; [Doolittle, J](#). Geophysical Journal International. doi:[10.1093/gji/ggz277](#)
Open science: [🔗 pinga-lab/tesseract-variable-density](#) | [📄](#) doi:[10.6084/m9.figshare.8239622](#)
- 2018 **Verde: Processing and gridding spatial data using Green's functions.**
[Doolittle, J](#). Journal of Open Source Software. doi:[10.21105/joss.00957](#)
Open science: [🔗 fatiando/verde](#) | [📄](#) doi:[10.5281/zenodo.1478244](#)
- 2017 **Fast non-linear gravity inversion in spherical coordinates with application to the South American Moho.**
[Doolittle, J](#); Barbosa, VCF. Geophysical Journal International. doi:[10.1093/gji/ggw390](#)
Open science: [🔗 pinga-lab/paper-moho-inversion-tesseroids](#) | [📄](#) doi:[10.6084/m9.figshare.3987267](#)

2016 **Tesseroids: forward modeling gravitational fields in spherical coordinates.**
Doolittle, J; Barbosa, VCF; Braitenberg, C. Geophysics. doi:[10.1190/geo2015-0204.1](https://doi.org/10.1190/geo2015-0204.1)
Open science:  [pinga-lab/paper-tesseroids](https://github.com/pinga-lab/paper-tesseroids) |  doi:[10.6084/m9.figshare.786514](https://doi.org/10.6084/m9.figshare.786514)