

Matheus Fagundes

Environmental Engineer



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/mf99274

Education

Class of 26' MBA

Fisher College of Business

PhD in Engineering (GPA 3.49)

Environmental and Water

University of Georgia

2019 - 2023 | Georgia, US

MSc., Marine Sciences (GPA 3.04)

University of Georgia

2016 - 2018 | Georgia, US

Exchange Program

Memorial University

2012 - 2013 | Newfoundland, Canada

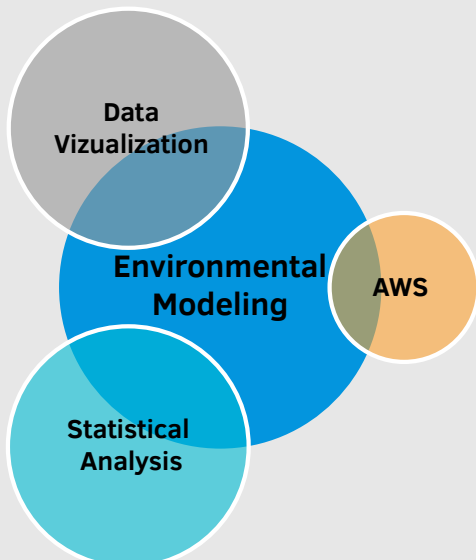
BsA., Oceanography and Limnology (GPA 8.406)

Universidade Federal do Maranhao

2010 - 2016 | Maranhao, Brazil

Technical Skills

Overview



Work Experiences (years)

1 year -

Data Assimilation using Cloud Computing - Post-Doctoral Researcher (2023-)

currently

- Responsible to develop the codes in Python to be used in AWS environment by other researchers in a Multi-Institutional project between Rutgers University, North Carolina University, and University of California - Santa Barbara.

2.5 years -

Advanced Analysis and Impact Assessment of a Blue Carbon Ecosystems - NSF Researcher Assistant

- Started working on the Multi-Institutional project between Stanford, FSU, and University of Georgia a year after started his PhD program in Engineer.
- A total of 3 papers to scientific journals were generated, one under revision and the others to be submitted.
- Led the creation of a Blue Carbon ecosystem model (Kelp forest) employing linear equations and statistical methods within a Computational Fluid Dynamics framework.
- Led the development of offline Python codes to describe the changes in CO₂ due to changes in pH in a Blue Carbon ecosystem.
- Tools:** Python, scikit-learn, pandas

1 year -

Creation of a Coastal Climate Impact Assessment Model - NSF Researcher Assistant

- Work published in **Nature Journal**.
- Proposed the inclusion of high frequency variability when down-scaling Global Climate simulations.
- Simulation, Validation, Analyses of ocean dataset. Delivered over 4000 lines of code.
- PCA, Bootstrapping, Linear/Logistic regression.
- Tools:** Python, scikit-learn, pandas

Extracurricular Experiences

- I have been coaching volleyball for girls between 12-15 years old since 2020.
- Member of the review committee of the Research Internships in Ocean Sciences (RIOS) REU at Rutgers University.
- Volunteer reviewer for PNAS (Proceedings of the National Academy of Sciences of the United States of America).
- Session chair at **OCB2023** summer workshop: "Marginal sea biogeochemical cycling in the Anthropocene".

Languages

- Portuguese (mother-tongue); English (proficient); Spanish (beginner).

Interests and Activities

- I love traveling (whenever money allows). During my spare time, I play volleyball competitively, do CrossFit, go hiking, go to the gym, read fiction books, and play racquetball. Nowadays, I am on my journey to learn more about whiskeys.

Undergraduate Courses

- General Physics, Differential and Integral Calculus, Differential Equations, Fluid Mechanics, Differential and Integral Calculus 2, Differential and Integral Calculus 3, Biostatistics, Calculus 3, Data Analysis and Processing, Physics 2, Physical Oceanography.

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Programming

Python • Linux/Unix

Cloud Computing • R

Graduate Courses

- Data Analysis for Geoscientists; Advanced Fluid Mechanics; Transport and Mixing in Natural Flows; Climate and Mathematics; Modeling Earth's Climate System; Quantitative Methods in Marine Sciences; General Physical Oceanography.

Hackatons

- **JPMorgan 2021** - Data for good hackaton.
- **OceanHackWeek 2019** - Project - 21st Century Prediction of Fish Larvae Catch Using ML (github).

Internships

- **Summer 2022** - Hydrodynamic and wave modeling, and AI at Michael Baker International.
- **Summer 2014** - Ocean modeling in HPC training at National Institute for Space Research (Brazil).
- **Summer 2012** - Quantifying Potential Energy in Internal Gravity Waves at Memorial University (Canada).

Publications

- Fagundes, M. *et al.* **Kelp Forest model development in the Coupled Ocean-Atmosphere-Wave-Sediment-Transport model (COAWST V3.4)**. *Under review* at Geoscientific Model Development.
- Monismith, S., Alnajjar, M., Daly, M., Valle-Levinson, A., Juarez, B., **Fagundes, M.**, Bell, T., Woodson, C.B. **Kelp Forest Drag Coefficients Derived from Tidal Flow Data**, Journal: Estuaries and Coasts, 2022.
- Valle-Levinson, A., A. Daly, M.; Juarez, B.; **Fagundes, M.**; Woodson, C. B.; Monismith, S. G. **Influence of kelp forests on flow around headlands**, Journal: Science of the Total Environment, 2022.
- Omidvar, S.; **Fagundes, M.**; Woodson, C.B. **Modification of internal wave generation and energy conversion in the nearshore due to tide-tide and tide-wind interactions**, JGR Oceans, 2022.
- Fagundes, M. *et al.* **Downscaling global ocean climate models improves estimates of exposure regimes in coastal environments**, *Nature Scientific Reports*, 2020.

Other publications

Title: AI-Enabled Coastal Field Reconnaissance for Coastal Hazard Studies.