Matheus Fagundes

Engineer

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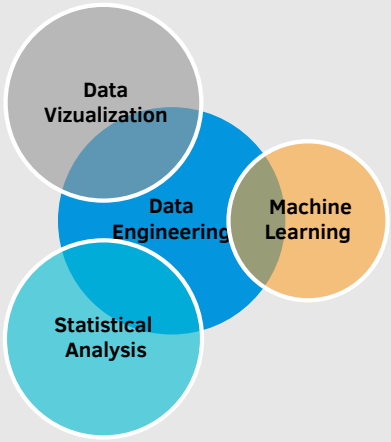
Technical Skills

Overview



Programming

Python • Linux/Unix

MATLAB • LaTeX • R

SQL • FORTRAN

Education

PhD candidate in Engineering (GPA 3.49)
Specialization: Water and Environment
University of Georgia
2019 - Present | Georgia, US
***NSF* Graduate Research Fellow**

MSc., Marine Sciences
University of Georgia
2016 - 2018 | Georgia, US
***NSF* Graduate Research Fellow**

BsA., Oceanography and Limnology
Universidade Federal do Maranhao
2010 - 2016 | Maranhao, Brazil

Experiences

Courses

- Modeling, Statistical Analysis, and Uncertainty; Data Analysis for Geoscientists; Advanced Fluid Mechanics; Transport and Mixing in Natural Flows; Computational Engineering; Climate and Mathematics; Data Mining(audited); Modeling Earth's Climate System; Applied Regression Analysis.

OceanHackWeek 2019 OceanHackWeek

- It is a hybrid between Ocean Sciences and Data Science
- Learned several tools in Python to apply in Data Science and Ocean Science during a week. (WeekSchedule)
- **21st Century Prediction of Fish Larvae Catch Using ML** - This project was a machine learning effort to predict fish larvae catch numbers. (github)

Sep 2012 - Dec 2013 **Scholarship Award by Brazil-Canada (CBIE)**

- Internship - titled: **Modeling potential Energy in Internal Gravity Waves using python** - Advisor: *Dr. James R. Munroe*
- Worked with internal gravity waves dataset generated in the laboratory and used Python to perform the calculations.

Research

2019 - Present **PhD. Candidate, Graduate Research Assistant** University of Georgia
Dissertation: Name to be determined

- Adding a kelp vegetation module in ROMS.
- Running larvae simulation and Oxygen Dynamics to understand the impact of vegetation in the model.
- Deep learning to predict Spatio-temporal for kelp forests in the future.
- **Tools**: Python, scikit-learn, pandas

2016 - 2018 **MSc. Candidate, Graduate Research Assistant** University of Georgia
Thesis: Exposure of nearshore organisms to climate stressors in the upwelling region of Monterey Bay (see publication below)

- Proposed the inclusion of high frequency variability when downscaling Global Climate simulations.
- Simulation, Validation, Analyses of ocean dataset. Delivered over 4000 lines of code.
- PCA, Bootstrapping, Monte Carlo, Linear/Logistic regression.
- **Tools**: Python, scikit-learn, pandas

Publications

Monismith, S. G.; Valle-Levinson, A.; A. Daly, M.; Juarez, B.; Fagundes, M; Woodson, C. B. **Kelp forest drag coefficients derived from tidal flow data**,Estuaries and Coasts (ESCO), (*in revision*).

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 (*in revision*).

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 (*in print*).

Fagundes, M. *et al*. **Downscaling global ocean climate models improves estimates of exposure regimes in coastal environments**, Nature *Scientific Reports*,2020. `https://www.nature.com/articles/s41598-020-71169-6`