José Vinícius de Miranda Cardoso

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keywords: data analysis, optimization, machine learning, software development, quantitative research

Education

PhD Student in Electronic and Computer Engineering — *Fall 2019 – Spring 2023* (*expected*)
The Hong Kong University of Science and Technology, Hong Kong
Topic: Probabilistic graphical models for financial markets
GPA: 4.0/4.3

Visiting Student – Electrical Engineering and Computer Science — *Fall 2014 – Spring 2015*
The Catholic University of America, USA
University of Maryland at College Park, USA
Brazil Scientific Mobility Program, Fully funded scholarship recipient

B.Eng. in Electrical Engineering — *2019*
Federal University of Campina Grande, Brazil

Professional Experience

Teaching Assistant — *Feb 2020 – Current*
The Hong Kong University of Science and Technology, Hong Kong
Courses: Data-driven Portfolio Optimization, Convex Optimization

Scientific Software Engineering Intern — *Mar 2017 – Feb 2018*
National Aeronautics and Space Administration
Ames Research Center, Silicon Valley, CA, USA
Kepler/K2 Guest Observer Office
Developed open source Python code to assist scientists get the most out of NASA Kepler/K2 time series data.

Google Summer of Code Student — *Summer 2016*
The AstroPy Project
Project title: Point spread function photometry for fitting overlapping stars simultaneously
Developed open source Python code to fit Gaussian mixture models to stellar images.

Undergraduate Guest Researcher — *Summer 2015*
National Institute of Standards and Technology, USA
Center for Nanoscale Science and Technology
Nanofabrication Research Group
Developed MATLAB code to automatically localize nanoemitters in optical microscopy images.

Volunteering Experience

Deputy AstroPy Google Summer of Code Coordinator — *Fall 2019 – Current*
Deputy coordinator for the AstroPy project in the Google Summer of Code program
Organizing the AstroPy efforts towards participating in the Google Summer of Code.

Google Summer of Code Organization Administrator — *Summer 2019 – Current*
Admin for the OpenAstronomy organization during the Google Summer of Code 2019 and 2020
Managing the OpenAstronomy efforts towards participating in the Google Summer of Code.

Google Summer of Code Mentor for the AstroPy Project — *Summer 2018*
Project title: Develop astropy tutorials on how to fit data
Mentored an astronomy PhD student during her Google Summer of Code project with AstroPy.

Project Proposals

NASA Transiting Exoplanet Survey Satellite Proposal *2019*
Uniform Light Curves Across the Entire Sky from TESS FFIs with ELEANOR
Principal Investigators: Dr. Benjamin Montet (University of Chicago) and Dr. Jacob Bean (University of Chicago)

NASA Transiting Exoplanet Survey Satellite Proposal *2018*
Performing The Most Comprehensive Exoplanet Survey Of The Southern Sky With TESS Full Frame Images
Principal Investigator: Dr. Benjamin Montet (University of Chicago)

Selected Publications

1. Ying, J, **Cardoso, JVM**, Palomar, DP. Nonconvex Sparse Graph Learning under Laplacian-structured Graphical Model. *Advances in Neural Information Processing Systems* (*NeurIPS*), Sept. 2020. Acceptance rate: 20.1%.
2. **Cardoso, JVM**, Palomar, DP. Learning undirected graphs in financial markets, *54th Asilomar Conference on Signals, Systems, and Computers*, Sept. 2020.
3. Ying, J, **Cardoso, JVM**, Palomar, DP. Does the ℓ_1-norm learn a sparse graph under Laplacian constrained graphical models?, *arXiv preprint* arXiv:2006.14925, June, 2020.
4. Kumar, S, Ying, J, **Cardoso, JVM**, Palomar, DP. A unified framework for structured graph learning via spectral constraints. *Journal of Machine Learning Research* (*JMLR*), Jan. 2020.
5. Kumar, S, Ying, J, **Cardoso, JVM**, Palomar, DP. Structured graph learning via Laplacian spectral constraints. *Advances in Neural Information Processing Systems* (*NeurIPS*), Dec. 2019. Acceptance rate: 21.6%.
6. Kumar, S, Ying, J, **Cardoso, JVM**, Palomar, DP. Bipartite structured Gaussian graphical modeling via adjacency spectral priors. *53rd Asilomar Conference on Signals, Systems, and Computers*, Dec. 2019.
7. **Cardoso, JVM**, *et. al.* Lightkurve: Kepler and TESS time series analysis in Python. *Astrophysics Source Code Library*, 2018.
8. Price-Whelan, AM, *et. al.* The Astropy Project: Building an open-science project and status of the v2.0 Core Package, *The Astronomical Journal 156*, 2018.
9. Davanco, MI, Liu, J, Sapienza, L, Zhang, CZ, **Cardoso, JVM**, Verma, V, Mirin, R, Nam, SW, Srinivasan, K. Heterogeneous integration for on-chip quantum photonic circuits with single quantum dot devices. *Nature Communications*, 2017.
10. **Cardoso, JVM**, *et. al.* An approximate exponentiated Weibull envelope-phase distribution. *IEEE International Symposium on Antennas and Propagation*, Farjado, Puerto Rico, 2016. ⋆⋆***Travel grant recipient***⋆⋆.

For a complete list of my publications, please refer to my Google Scholar profile `https://scholar.google.com/citations?user=ilvNpCoAAAAJ&hl=en`.

Awards

1. Full travel funding to attend the workshop *Preparing for TESS*, Center for Computational Astrophysics, Flatiron Institute, New York City, USA, 2018
2. Selected to the workshop Python in Astronomy, Leiden, The Netherlands, 2017
3. Travel Grant (U$ 2000,00) by the Institute of Electronic and Electrical Engineers to attend the IEEE APS Meeting 2016

Competencies

Coding: Python, R, C++, git/GitHub, Unix shell, unit tests, continuous integration/development

Courses: Convex Optimization, Stochastic Processes, Information Theory, Topological and Geometric Data Analysis

R **packages maintainer:** spectralGraphTopology (learning graphs from data), riskParityPortfolio (design of risk parity portfolios)

Python **packages maintainer:** riskparity.py (optimization of risk parity portfolios)