

José Vinícius de Miranda Cardoso

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

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Education

PhD Student in Electronic and Computer Engineering
The Hong Kong University of Science and Technology, Hong Kong
Topic: Probabilistic graphical models for financial markets
CGA: 3.74/4.3

Fall 2019 – Spring 2023 (expected)

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

Fall 2014 – Spring 2015

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

2019

Professional Experience

AI/Data Scientist Researcher Intern
Shell Street Labs, Hong Kong
Developed Python tools for portfolio optimization and systematic strategies

Jun 2021 – Aug 2021

Teaching Assistant
The Hong Kong University of Science and Technology, Hong Kong
Courses: Data-driven Portfolio Optimization, Convex Optimization, Portfolio Optimization with R

Feb 2020 – Current

Scientific Software Engineering Intern
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.

Mar 2017 – Feb 2018

Google Summer of Code Student
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.

Summer 2016

Undergraduate Guest Researcher
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.

Summer 2015

Volunteering Experience

Deputy AstroPy Google Summer of Code Coordinator
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.

Fall 2019 – Current

Google Summer of Code Organization Administrator
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.

Summer 2019 – Current

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. **Cardoso, JVM**, et. al. Lightcurve: Kepler and TESS time series analysis in Python. *Astrophysics Source Code Library*, 2018.
7. 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.
8. 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.

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 (US\$ 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, Deep Learning Architectures, 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)