Natacha Altamirano
Physics PhD

Experience

Insight Data Science   **Toronto**
Fellow   *09/2018 - Present*

- Built kick-smarter, a tool that predicts successful crowdfunding campaigns and recommends features to be improved.
- Developed a machine learning pipeline using text feature engineering with NLKT with random forest and ensemble algorithms.
- Deployed a Flask web application on AWS.

University of Waterloo and Perimeter Institute for Theoretical Physics   **Waterloo**
Research Assistant   *2014 - 2018*

- Numerically implemented chi-square minimization in Fourier space to cross-correlate data sets from SDSS (250000 galaxies with 10 features) and Planck (50 million pixels maps) to tackle the *missing baryon problem*.
- Constructed a model of stochastic emergent gravity based on Itô calculus to understand the gravitational effect on quantum particles.
- Implemented analytical and numerical methods of differential geometry to study the properties of blackholes in higher dimensions.
- Led and devised goals for international collaborations to build theoretical models that will be tested in satellites.
- Published 10 papers that accumulated 450 citations.

Management

- Raised $6,000 to conduct the first workshop for grads and post-docs in relativistic quantum information: "Spacetime and Information".
- Organized the "Career day Trajectories" at Perimeter Institute that exposed physicist to different career paths outside of academia. 160 participants.
- Human resources training: developed research projects for 2 teams of 4 master students and devised thesis projects for 3 graduate and undergraduate students.

Skills

- Languages: Python, LaTeX, SQL.
- Data Science tools: Numpy, SciPy, Pandas, HealPy, matplotlib, Jupyter, Git.
- Machine Learning: scikit-learn, logistic regression, random forest, ExtraTrees, AdaBoost.

Education

University of Waterloo and Perimeter Institute for Theoretical Physics   **Waterloo**
PhD in Theoretical Physics   *2014-2018*

University of Waterloo and Perimeter Institute for Theoretical Physics   **Waterloo**
MSc in Theoretical Physics   *2012-2013*

National University of Cordoba   **Cordoba, AR**
Licentiate in Physics (Bachelors + Masters equivalent)   *2007-2012*