

Rosamaria Carraro

PHD IN ASTROPHYSICS · DATA CAMP CERTIFIED PROFESSIONAL DATA SCIENTIST

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Summary

I am a Ph.D. in Astrophysics with international experience. My great analytics skills and thirst for learning are complemented by my effective communication abilities, showcased through talks at international conferences and published papers. I am eager to apply my expertise and effectively collaborate and communicate with diverse teams and stakeholders leveraging my strong language skills in English, Italian, and Spanish.

Computer skills

Programming	Python (pandas, sklearn, multiprocessing), SQL, Git, Unix shell.
Machine Learning	Classifications, Regressions, Dimensionality reduction, Ensemble learning, Random Forests, Boosting, Model tuning.
Deep Learning	PyTorch, TensorFlow, NLP, Convolutional Neural Networks, Recurrent Neural Networks, Attention models.
Data Visualization	Matplotlib, Seaborn, Bokeh, Looker, Keynote, LaTeX.
Mathematics	Calculus, Statistics, Linear Algebra.
Others	Regular Expressions, Monte Carlo methods: bootstrapping.

Portfolio

NLP ON HAIR PRODUCTS INGREDIENTS [\[LINK\]](#) This project studies how products group on a 2D plane. It involves web scraping, One-Hot encoding, and t-SNE dimensionality reduction to estimate distances between products. We use an interactive Bokeh app for easy product distance visualization and ingredients comparison.

DATA CHALLENGE USING K-NN [\[LINK\]](#) An ML classification project using a Kaggle dataset following all the basic steps, from exploratory data analysis to model evaluation. I used Principal Component Analysis for dimensionality reduction, K-Nearest Neighbors, and many visualizations.

LIGHT CURVES [\[LINK\]](#) A research project studying the variation of active black holes at the centers of galaxies. I extracted light curves (time series) of variable sources from their raw images. I cross-correlated light curves with different physical origins and I simulated them, in order to retrieve additional constraints on their physical properties.

A SEMI-EMPIRICAL MODEL FOR GALAXIES [\[LINK\]](#) A research project in which we generated mock catalogs of galaxies and studied the drivers of the statistical relations among galaxy physical properties found in the literature.

PIZZA RECIPE GENERATOR [\[LINK\]](#) An interactive Bokeh app that delivers a pizza recipe based on your tray size and favorite thickness.

DJANGO WORKOUT CALENDAR [\[LINK\]](#) A web app that allows you to keep track of the workouts you perform by following YouTube videos.

CO-EVOLUTION OF BLACK HOLES AND HOST GALAXIES [\[LINK\]](#) My first published work, studying a large sample of galaxies selected from flat tables: I cross-matched the tables and selected sources based on their properties, to finally extract meaningful statistics and confidence ranges for my samples of sources.

Certifications

DeepLearning.AI	Deep Learning Specialization on Coursera	2022
DataCamp	Professional Data Scientist Certification	2022
DataCamp	SQL Fundamentals Skill Track	2022
DataCamp	Data Scientist with Python Career Track	2020
DataCamp	Statistics fundamentals with Python Skill Track	2020

Education

PhD in Astrophysics	Valparaíso, Chile
UNIVERSIDAD DE VALPARAÍSO	2015 - 2022
YALE UNIVERSITY - VISITING ASSISTANT IN RESEARCH	Jan - Nov 2017
Master's Degree in Astronomy	Padua, Italy
UNIVERSITÀ DEGLI STUDI DI PADOVA, FINAL GRADE 110/110	2010-2015
Bachelor's Degree in Physics	Rome, Italy
UNIVERSITÀ DEGLI STUDI ROMA TRE, FINAL GRADE 104/110	2004-2010