Bruno Focassio

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EXPERIENCE

Visiting Research Fellow (PhD student), Trinity College Dublin - Dublin, Ireland

Feb 2022 - Feb 2023

Machine learning and **Predictive modelling** for two-dimensional materials' properties at the Computational Spintronics Group, led by Stefano Sanvito.

Associate Researcher (PhD student), Brazilian Center for Research in Energy and Materials (CNPEM) - Campinas, Brazil

Feb 2019 - PRESENT

Collaboration with experimental scientists. **Data Mining** and **Statistical Analysis** of experimental data. Insights from **machine learning models** (**regression** and **classification**). Interpretation of time series data using **clustering**. Data visualization and presentation.

EDUCATION

PhD in Nanotechnology and Advanced Materials, Universidade Federal do ABC (UFABC)

Feb 2019 - 2023

Data Science and **Machine Learning** applied to Materials Science to discover and design new materials.

B.E. Materials Engineering, Universidade Federal do ABC (UFABC)

Jun 2014 - Oct 2019

B.S. Science and Technology, Universidade Federal do ABC (UFABC)

Jun 2014 - Dec 2017

PROJECTS (HIGHLIGHTS) - bfocassio.github.io

How lignin sticks to cellulose—insights from atomic force microscopy enhanced by machine-learning analysis and molecular dynamics simulations — *link*
Data cleaning and transformation. Noise reduction with PCA. Time series clustering.

Linear Jacobi-Legendre expansion of the charge density for machine learning-accelerated electronic structure calculations — *link*
Fingerprint coding. Data transformation. Regression Analysis. Deployment of regression model to application.

Machine learning for materials discovery: two-dimensional topological insulators — *link*
Data mining. Feature transformation. Classification model. Model deployment to discover new materials.

Machine learning of microscopic ingredients for graphene oxide/cellulose interaction — *link*
Feature transformation. Insights from regression and classification models. Data visualization.

SKILLS

Python, SQL, Tableau, pandas, scikit-learn

Data Analysis, Machine Learning, Regression models, Classification models, Clustering, Predictive Modelling

Exploratory Data Analysis, Data Visualization

Statistical Analysis, A/B Testing

Deep Learning models, TensorFlow, PyTorch

Problem-Solving, Effective Written Communication

LICENSES & CERTIFICATIONS

Google Advanced Data Analysis

SQL for Data Science

The Nuts and Bolts of Machine Learning

Go Beyond the Numbers: Translate Data into Insights

Foundations of Data Science

LANGUAGES

English - Full professional fluency
Portuguese - Native speaker