

NICOLÁS VILA

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EDUCATION

Universitat Pompeu Fabra

Barcelona, Spain

Mathematical Engineering on Data Science

Expected June 2024

Honors: Numerical Methods, Machine Learning, Signals & Systems I, Probability, Operating Systems

Undergraduate Thesis Topic: Regularized Deep Reinforcement Learning from a Linear Programming framework. Advisor: Gergely Neu.

The University of Chicago

Chicago, IL

Non-degree seeker, International Student at Large.

September 2022-June 2023

Coursework: Time Dependent Data, Introduction to Cryptography, Introduction to Quantum Computing,

Data Science Clinic, Entrepreneurship in Technology, Multivariate Statistical Analysis, Introduction to Database Systems.

University of Chicago Booth School of Business

Chicago, IL

Exchange student

April 2023- June 2023

Coursework: Big Data

Toyota Technological Institute at Chicago (TTIC)

Chicago, IL

Coursework: Fundamentals of Deep Learning

September 2022-December 2022

EXPERIENCE

Amazon EU

Barcelona, Spain

Data Engineer Intern.

June 2023 - October 2023

- Part of the Data Engineering team at ATS (Amazon Transportation Services) which handles data pipelines used by a range of different internal teams.
- Developed a visual analytics pipeline on AWS Quicksight to deploy dashboards and create automatic alerts from real-time data stored in an RDS Database using the AWS-CDK.

University of Chicago Law School

Chicago, IL

Research Assistant.

March 2023 - October 2023

- Research on fine-tuning open source and pre-trained Large Language Models for automatic text generation in the realm of Law, such as case briefings and memorandums.

University of Chicago Data Science Institute | Greenwave

Chicago, IL

Data Science Clinic student.

January 2023 - March 2023

- Research and implementation of computer vision models to predict the mass of kelp from images.

PROJECTS

Deep Learning Anomaly Detection Meta-Model | PyTorch | <https://github.com/niicovila/AgBarDataChallenge>

December 2023

- Developed and trained a Transformer-LSTM based hierarchical model for anomaly detection, consumption pattern recognition and prediction using daily water consumption time series data recorded from 2019 to 2022.

VQ-VAE Paper Extension | Python, PyTorch | <https://github.com/niicovila/VQ-VAE-Extension>

December 2022

- A modification of the VQ-VAE (Vector-Quantised Variational Auto-Encoder) paper decreasing by a half the reconstruction error.

Central England Temperature Analysis | R Studio | github.com/niicovila/Climate-Time-Series-Analysis

November 2022

- Analyzed the Central England Temperature annual and monthly dataset using smoothing techniques and ARIMA models.

Optimisation Techniques for Image Denoising | Python | github.com/niicovila/Optimisation-Techniques

May 2022

- Implemented a model based on optimisation techniques for image denoising.

LEADERSHIP & ACTIVITIES

Finalist of the ABDataChallenge by “Aigües de Barcelona”

December 2023

Contestant at the 2022 ICPC Southwestern Europe Regional Contest.

April 2022

Finalist of the “Big Data Challenge” by “CaixaBank”.

March 2018

- One of the 10 finalists in a nation-wide contest organised by CaixaBank. Participated in the final dataton in Barcelona, Spain.

SKILLS & LANGUAGES & INTERESTS

Skills: Python, PyTorch, C, C++, Java, JavaScript, Matlab, R, Docker, Git, Linux, SQL, AWS, Spark

Languages: Fluent in Spanish, English and Catalan.

Interests: mathematics, machine learning, reinforcement learning, deep learning, statistics, entrepreneurship, artificial intelligence, data science, innovation.