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: 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

Regularized Deep Reinforcement Learning from a Linear Programming framework | Python, PyTorch, Gymnasium| December 2023
  - Research and comparison of different regularized RL algorithms. Developing a large scale implementation
    of the QREPS algorithm using Deep Neural Networks on a range of different discrete environments.

Hierarchical Deep Learning Model for Anomaly Detection | Python, PyTorch, Streamlit | 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 | 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 | November 2022
- Analyzed the Central England Temperature annual and monthly dataset using smoothing techniques and
  ARIMA models.

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

Skills: Python, PyTorch, C, C++, Java, JavaScript, Matlab, R, Docker, Git, Linux, SQL, AWS, Spark
Languages: Spanish (Native), English (C1) and Catalan (Native).