Aritz Lizoain

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EDUCATION

Universidad de Cantabria (UC) — **Santander, Spain**
Bachelor of Science in Physics — Sept 2016 - Sept 2020

- Relevant coursework: probability & statistics, numerical analysis, data processing & visualization, software engineering principles, object-oriented programming (OOP), data structures & algorithms, linear algebra, multivariable calculus.

Universität Zürich (UZH) — **Zürich, Switzerland**
Bachelor of Science in Physics / Erasmus+ — Sept 2018 - Sept 2019

- Relevant coursework: statistical mechanics, molecular dynamics.

PROFESSIONAL EXPERIENCE

Machine Learning Engineer — **St. Gallen, Switzerland**
Cheque - Der intelligente Cloudspeicher — Nov 2020 - May 2021

- Researched state-of-the-art machine learning implementations in Python, in addition to performing data wrangling and feature engineering to develop a document management mobile application in a fintech start-up.
- Employed transfer and ensemble learning in object detection models trained on self-annotated images for multidomain document layout analysis focused on legal and financial records (e.g. contracts, invoices).
  - Libraries: Detectron2, TensorFlow, PyTorch, YOLOv5, LayoutLM.
- Achieved above 97% accuracy in text classification by applying text mining and natural language processing (NLP) techniques (e.g. keyword extraction, topic modeling) to unstructured data in English and German.
  - Libraries & methods: NLTK, scikit-learn, BERT, Gensim, spaCy, support-vector machine (SVM), Naive Bayes.
- Held 2-4 meetings per week with the founder to analyze business cases and brainstorm technical solutions to customer needs, such as reducing by 90% the data required for training a reliable object detection model.

Search for dark matter with deep neural networks — **Santander, Spain**
Institute of Physics of Cantabria (IFCA) — Feb 2020 - Sept 2020

- Pioneeringly discriminated pixel-sized dark matter candidate signals on 16 megapixel particle detector images by designing and implementing an end-to-end image segmentation pipeline for automated data quality monitoring.
- Built from scratch, trained, optimized (e.g. data augmentation, hyperparameter tuning), and evaluated a Convolutional Neural Network (CNN) with Keras, which achieved a 99% test accuracy.
- Obtained a bachelor thesis grade of 9.5/10, and earned the opportunity to present results and contribute to the 'DarkMachines' collaboration.

TECHNICAL SKILLS

- Python
- R
- Java
- MATLAB
- SQL
- Wolfram Mathematica
- Git
- Excel

LANGUAGES

- Spanish (native)
- Basque (native)
- English (native proficiency C2)
- French (intermediate B1)