David Pérez Carrasco

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Leveraging analytical and critical thinking skills, I develop impactful Machine Learning models through rigorous AI research. With experience in Deep Learning, NLP, and Reinforcement Learning, I relentlessly pursue optimal solutions. Ambitious, detail-oriented, and driven, I aim to excel in AI/ML research at a world-leading tech company.

WORK EXPERIENCE

AI & ML Researcher at Universitat Pompeu Fabra | Internship — Barcelona, Spain — Jul 2023 - Jul 2024
- Developed comprehensive RL frameworks, incorporating deterministic and stochastic sequential actions, and improving agent decision-making capabilities.
- Formulated novel and robust embedding techniques through MDPs and LMDPs, achieving a 99.23% precision improvement for stochastic MDPs.

EDUCATION

Universitat Pompeu Fabra - **Mathematical Engineering in Data Science** — Barcelona, Spain — Sept 2020 - Jun 2024
Bachelor's Thesis: Efficient Algorithms for Linearly Solvable Markov Decision Processes
Grade: 8.72 | Ranked 2nd in Graduating Class
Honors: Introduction to Programming, Introduction to Network Science, Discrete Mathematics, Data Structures & Algorithms, Object-Oriented Programming, Algorithm Design, Probabilistic Graphical Models, Information and Codification Theory.

University of British Columbia – Exchange Program — Vancouver, Canada — Sept 2022 - Dec 2022
34th best university worldwide according to 2023 [QS ranking] and 19th in Data Science.
Coursework: Relational Databases (A), Machine Learning and Data Mining (A-), Finding Relationships in Data (A-) and Artificial Intelligence (B).

PROJECTS

Sentiment Analysis and Contextual Retrieval with LLMs and Transformers | Python — Jun 2024
- Fine-tuned BERT for sentiment analysis, used Hugging Face transformer for retrieval, and engineered prompts for Mistral's LLM to generate summaries.

Hierarchical Deep Learning Model for Anomaly Detection | Python (PyTorch, Streamlit) — Dec 2023
- Developed and trained a Transformer-LSTM based hierarchical model for anomaly detection and consumption pattern recognition in time series data.

Information Retrieval Search Engine for Russo-Ukranian War | Python, HTML, CSS — Nov 2023
- Built a large-scale information retrieval search engine for analyzing Russo-Ukrainian War tweets using text processing, TF-IDF, Word2Vec and web analytics.

SRGAN for Image Super Resolution | Python (PyTorch, NumPy) — Jun 2023
- Enhanced image quality by 4x and reduced noise through SRGAN implementation.

Deep Learning for Cryptoanalysis | Python (PyTorch, Pandas, NumPy) — May 2023
- Decoded corrupted files implementing, training, and testing CNNs and LSTMs.

Apache Spark for Big Data – Tweets filtering | Java, Apache Spark, AWS (S3 & EMR) — Apr 2023
- Filtered real-time tweets with large-scale distributed systems and cloud storage.

Machine Learning for Customer Segmentation and BI | Python — May 2022

ACHIEVEMENTS

Finalist in the 2023 AB Data Challenge — Barcelona, Spain — Dec 2023
- Predicted water consumption and detected 50k anomalies with Hierarchical DL.

Contestant at the 2022 IPCP Southwestern Europe Regional Contest — Milan, Italy — Apr 2022
- Represented UPF in a 5-hour programming competition.

SKILLS

Technical skills: Python, SQL, Excel, R, MATLAB, Tableau, Java, JavaScript, C, C++, Julia, PHP, Oracle, AWS, GraphML, Agile, Jira, Maven, Apache Spark, MPI, Cuda, RDS, Hadoop, CSS, Git, Gymnasium, Huggingface

Languages: Spanish (Native), Catalan (Native), English (**C1** – Cambridge English | February 2022).

HONORS & AWARDS

- Academic distinction issued by the Catalan Government for my outstanding results in PAU.
- Placed in the honor roll for my outstanding academic performance in 2018-2019 academic year.