

Jacobo Del Valle

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SUMMARY

AI Research Scientist specializing in Language AI/NLP, with extensive experience taking advanced LLMs from research to scalable production. Deeply passionate about the intersection of human languages and AI, demonstrated by a history of scaling multilingual models at world-class organizations like DeepL and Amazon. Holds a scholarship-funded Master's degree in Computer Science (NLP focus) alongside a strong foundation in software engineering.

EXPERIENCE

DeepL

AI Research Scientist | Machine Translation

Cologne, Germany

Sep 2023 – Current

- Led the expansion of the language portfolio from 30 to 100+ languages for the translator product, enabling \$10M+ in new sales opportunities by implementing a specialized training and evaluation pipeline suitable for high and low-resource languages.
- Leveraged internal cluster resources to carry out short and long-running experiments on multilingual LLMs.
- Engineered scalable data curation pipeline utilizing a hybrid filtering approach (heuristics paired with LLMs as judges).
- Contributed to core model update yielding a 10% increase in win-rate against main competitors by designing automated evaluation metrics and managing multi-week fine-tuning runs.
- Coordinated efforts between researchers and language specialists and designed an evaluation system for translation tasks.

Amazon

Applied Scientist Intern | Alexa AI

Aachen, Germany

July 2022 – Oct 2022

- Adapted large natural language generation models to constrained scenarios without the need for full fine-tuning.
- Guided models in a constrained NLG scenario for the use case of AI assistants, particularly Alexa AI.

HealthCare.com

Data Scientist

Remote (US-based Company)

Apr 2020 – May 2022

- Developed a classification model to predict the intent behind a search query using natural language processing techniques such as vectorization, stemming, and clustering.
- Researched, designed, and implemented special vocabulary and tokenization techniques which reduced the vocabulary size of a classification system by ~70% without negatively impacting performance.
- Developed a recommendation system and its A/B testing infrastructure using AWS; executed feature engineering using internal and external data streams to optimize model training.
- Optimized API endpoint by modifying queries and implementing Redis caching systems.

Plus Technologies & Innovations S.A.

Backend Developer & Data Scientist

Guatemala City, Guatemala

Oct 2016 – Apr 2020

- Pioneered, optimized and maintained clustering and data exploration setup in both R and python.
- Applied and regularized Gradient Boosting algorithms in R to solve the task of fraud prevention in a banking setting.
- Designed deep neural networks using Tensorflow and optimized hyper-parameter search using Bayesian approaches.
- Overhauled cloud resource management by auditing existing AWS workloads and establishing a cost-convenience framework for service selection; right-sized EC2 and S3 deployments to slash infrastructure expenses by over 50%.

SKILLS

AI/ML Expertise: Transformers, LLMs, Multilingual Models, LLM Evaluation (automatic and human) & Benchmarking, Data Curation Pipelines

Programming Languages: Python, R, Java, SQL

Frameworks & Tools: PyTorch, Megatron-LM, TensorFlow, Airflow, Redis, Git, $\LaTeX$

Open Source Contributions: ClosedXML, dolphin-emu, fastai, streamlit

Languages: English, Spanish (Native), German (Proficient)

EDUCATION

Charles University, Saarland University

M.Sc. Computer Science (NLP Focus)

Czechia/Germany

Aug 2023

- EMLCT double degree scholarship recipient
- **Master's Thesis:** Analyzing Modular Cross-Lingual Transfer Learning
 - Evaluated how data scale, training step hyperparameters, checkpoint criteria, and lexicon overlap affect downstream performance in modular multilingual language models (X-MOD).
 - Formulated optimization guidelines for leveraging cross-lingual transfer learning in low-resource settings.

Galileo University

B.Sc. Computer Science (Magna Cum Laude Honors)

Guatemala City, Guatemala

Nov 2019

- **Bachelor's Thesis:** Neural Networks and Transfer Learning for Stylometry and Author Profiling
 - Pioneered the application of early NLP transfer learning frameworks (ULMFiT/BERT-era) to identify demographic and stylistic traits in anonymous texts.
 - Demonstrated that deep learning approaches could match or exceed traditional statistical NLP methods while reducing data requirements.
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PROJECTS

LEFTy (Language Efficient Text Portray; 2019): Developed and open-sourced an NLP framework using PyTorch and fastai for multilingual author profiling. Trained and published the first publicly available pretrained Spanish language model utilizing a QRNN architecture, releasing the source code and weights for community reproducibility.

GradStats (2021): Built a web app using *streamlit* that allows students to explore historical graduate admissions data. Data was gathered by scraping TheGradCafe's website