

ANTONIO LOPARDO

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EXPERIENCE

Machine Learning Engineer, Veezoo, Zurich

June 2023 - Now

- Helped transition the company's product from logic-based query parser to **LLM-first** approach.
- **Finetuned language models** for natural language to SQL translation through intermediate representation and proprietary query language.
- Built **human-in-the-loop evaluation and monitoring pipelines** for finetuned and nonfine-tuned models.
- Developed LLM prompting strategies for natural language to proprietary query language translation, **without needing fine-tuning**.

EDUCATION & TEACHING

ETH Zürich, MSc in Computer Science, GPA: 5.51/6

Sep 2020 - May 2023

Teaching Assistant, Data Management Systems, ETHZ

Sep 2022 - Feb 2023

Politecnico di Milano, BSc in Computer Science, 110 cum laude

Oct 2016 - Sep 2019

PROJECTS AND OSS CONTRIBUTIONS

Clustering for Approximate Nearest Neighbor Search, MSc Thesis

Oct 2022 - Sep 2023

- Empirical analysis of trade-off of different clustering approaches to **billion-scale vector search**.
- **End-to-end approach** to IVF index optimization. With a focus on different initializations, compute budgets, inference time, recall and accuracy.
- Trained indexes with different algorithms, like Lloyd's algorithm, and **variations of gradient descent**.

Report available at <https://github.com/AntonioLopardo/MasterThesis>

Word Vectors as KG embeddings

April - July 2022

Poster available at <https://github.com/AntonioLopardo/WEForKGs>

Program Synthesis for Math Word Problems

March - June 2022

Report available at <https://github.com/AntonioLopardo/CodeSynthesisForMWP>

Medical QA Project with Retrieval augmented LM

May - July 2021

Report available at <https://github.com/AntonioLopardo/RAG-Finetuning>

Recommender Systems with BayesianSVD and Graph NNs

May - Jun 2021

Code available at <https://github.com/LucaMalagutti/CIL-ETHZ-2021>

Multi-Human Optical Flow

March - Jun 2018

Report available at <https://github.com/LucaMalagutti/MachinePerception-ETHZ-2021>

OpenMined Contributor, SyferText and Staff Writer

March - Sep 2020

Sample work available at <https://openmined.org/blog/what-is-homomorphic-encryption/>

The Midterms on Twitter - US Elections prediction

July - Nov 2018

More details are available at <https://ieeexplore.ieee.org/document/8622441> and <https://medium.com/@antonio.lopardo/the-midterms-on-twitter-3562b3c751b1>

SKILLS

- **Programming languages**: Scala, Python, Pytorch, SQL
- **Languages**: English (C2), Italian (native)