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 and technologies:** Scala, Python, Pytorch, HuggingFace, SQL, C, MySQL, AWS, Spark
- **Languages: English** (C2), Italian (native)