

Francesco Maria Molfese

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Experience

Amazon AGI, Applied Scientist Intern	May 2025 – Oct. 2025. <i>Barcelona, Spain</i>
<ul style="list-style-type: none">Trained Long-Context Language Models (LCLMs) using Reinforcement Learning with GRPO to augment in-context retrieval capabilities; improved performance by up to 20.1% on the in-domain long-context benchmark HELMET, and up to 8.9% on out-of-domain benchmarks (InfiniteBench, LongBench-v2, Loong).Tested LCLMs performance under efficient KV-cache compression strategies and analyzed attention allocation towards relevant documents in question answering tasks.	
Babelscape, NLP Engineer	June 2022 – July 2023. <i>Rome, Italy</i>
<ul style="list-style-type: none">Developed state-of-the-art cross-lingual sentence alignment systems for long texts.Engineered a highly efficient and accurate entity disambiguation system.Evaluated multilingual sentence embeddings for cross-lingual transfer.	
Target Reply, Data Scientist	Nov. 2021 – May 2022. <i>Rome, Italy</i>
<ul style="list-style-type: none">Developed computer vision segmentation pipelines for satellite imagery and unsupervised clustering for resource allocation, integrating microservices with AWS big-data pipelines.	

Education

Ph.D. in Artificial Intelligence, Sapienza University of Rome	Nov. 2022 – Nov. 2025. <i>Rome, Italy</i>
<ul style="list-style-type: none">Focus: LLMs, Question Answering, Retrieval Augmented Generation, Evaluation, Reasoning, Long-Context Language Models.Advisor: Prof. Roberto Navigli.	
M.Sc. in Engineering in Computer Science, Sapienza University of Rome	Oct. 2019 – Oct. 2021. <i>Rome, Italy</i>
<ul style="list-style-type: none">Grade: 110/110 cum laude (GPA: 29.7/30). Thesis carried out in collaboration with Florida Atlantic University.Advisors: Prof. F. Cuomo, Prof. D. Pados.	
B.Sc. in Engineering in Computer Science, Sapienza University of Rome	Sept. 2016 – Oct. 2019. <i>Rome, Italy</i>

Technical Skills

Languages & Core: Python, SQL, Bash, Git, Docker, Unix/Linux, CI/CD, Kubernetes.
AI/ML Stack: PyTorch, Hugging Face (Transformers, Datasets, Accelerate), vLLM, SGLang, vERL, WandB.
Expertise: LLM Pre-training/Fine-tuning, RAG, Long-Context LLMs, Reasoning, Information Retrieval, Question Answering.

Selected Publications

ReTraceQA: Evaluating Reasoning Traces of Small Language Models in Commonsense Question Answering.
Francesco Maria Molfese , Luca Moroni, Ciro Porcaro, Simone Conia, and Roberto Navigli. 2025. <i>ArXiv preprint</i> , currently under review.
Right Answer, Wrong Score: Uncovering the Inconsistencies of LLM Evaluation in Multiple-Choice Question Answering.
Francesco Maria Molfese , Luca Moroni, Luca Gioffré, Alessandro Scirè, Simone Conia, and Roberto Navigli. In Findings of the Association for Computational Linguistics: ACL 2025, Vienna, Austria.
ZEBRA: Zero-Shot Example-Based Retrieval Augmentation for Commonsense Question Answering.
Francesco Maria Molfese , Simone Conia, Riccardo Orlando, and Roberto Navigli. In Proceedings of the 2024 Conference on Empirical Methods in Natural Language Processing: EMNLP 2024, Miami, Florida, USA.
CNER: Concept and Named Entity Recognition.
Giuliano Martinelli, Francesco Molfese , Simone Tedeschi, Alberte Fernández-Castro, and Roberto Navigli. In Proceedings of the 2024 Conference of the North American Chapter of the Association for Computational Linguistics: NAACL 2024, Mexico City, Mexico.
CroCoAlign: A Cross-Lingual, Context-Aware and Fully-Neural Sentence Alignment System for Long Texts.
Francesco Maria Molfese , Andrei Stefan Bejgu, Simone Tedeschi, Simone Conia, and Roberto Navigli. In Proceedings of the 18th Conference of the European Chapter of the Association for Computational Linguistics: EACL 2024, St. Julian's, Malta.