Alessandro **Ristori**

Big Data & AI Specialist | M.Sc. in Artificial Intelligence

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About me

I have a Master's degree in Computer Science from the University of Pisa, specializing in Artificial Intelligence. I am interested in exploring the ever-expanding world of Machine Learning, mainly Natural Language Processing and Machine Translation, but not averse to testing my skills in other domains. I am mainly looking for jobs related to Machine Learning engineering and Data Science.

Work Experience

TAI Software Solution Srl   *Pisa (Mainly remote), Italy*

Big Data & AI Specialist   *May. 2024 - present*

- Working on Computer Vision and Natural Language Processing projects involving the Internet of Things and Cloud computing.
- Implementing Big Data solutions on AWS while leveraging its AI services.
- Training colleagues in Artificial Intelligence and Machine Learning.

Education

University of Pisa   *Pisa, Italy*

M.Sc. in Computer Science - AI curriculum   *Sep. 2020 - Dec. 2023*

- **Final mark:** 110/110 *cum Laude*.
- **Thesis:** *Continual Learning for Non-Autoregressive Neural Machine Translation*.
  The task involved working with two non-autoregressive models, namely CMLM and GLAT, and evaluating their performance in a multilingual scenario. The objective was to assess how well they address the issue of catastrophic forgetting while employing the continual strategy of experience replay.

University of Florence   *Florence, Italy*

B.Sc. in Computer Science   *Sep. 2016 - Feb. 2020*

- **Final mark:** 110/110.
- **Thesis:** *Genetic Algorithms and their Applications*.
  The behaviour of genetic algorithms was analyzed and their advantages and disadvantages were also evaluated. The algorithms were first applied to a simple case of function maximization and then utilised in a path-finding context.

ISISTL Russell-Newton   *Scandicci, Italy*

High School   *Sep. 2011 - Jul. 2016*

- **Final mark:** 100/100 *cum Laude.*
- Took part in the first edition of *Progetto TRIO* (an intership that spans over an entire school-year) during my fourth year.

Personal Projects

Centered Kernel Alignment in PyTorch   ⊙ *Repository*

Similarity Index for Neural Networks

- Implemented Centered Kernel Alignment in PyTorch. Centered Kernel Alignment (CKA) is a similarity index between representations of features in neural networks, based on the Hilbert-Schmidt Independence Criterion (HSIC). Given a set of examples, CKA compares the representations of examples passed through the layers that we want to compare.
- **Technical skills:** Python, PyTorch, HuggingFace (transformers), Git.

Continual Learning for Non-Autoregressive Neural Machine Translation   ⊙ *Repository*

M.Sc. Thesis project

- M.Sc. thesis on tackling the issue of Catastrophic Forgetting on two different non-autoregressive Neural Machine Translation models (CMLM and GLAT) by using the continual strategy of Experience Replay. An English-centric (i.e.: translating from and to English) scenario was employed to compare the two aforementioned project against a baseline encoder-decoder Transformer model.
- **Technical skills:** Python, PyTorch, HuggingFace (transformers, datasets, tokenizers), PyTorch Lightning, WandB, Git.

Skills

Main Interests	Artificial Intelligence, Machine Learning, Natural Language Processing, Neural Machine Translation.
Programming	Python, Java, MATLAB, SQL.
Main Libraries	Pytorch, Pandas, scikit-learn, NumPy, HuggingFace (transformers, datasets, tokenizers), PyTorch Lightning, Pydantic
Miscellaneous	Linux, Git, Docker, AWS.
Soft Skills	Teamwork, Keen interest to explore new fields, Self-organization, Openness to criticism for improvement.

Certificates

2025   **AWS Certified AI Practitioner**, Amazon Web Services (AWS)

Languages

Italian	Native proficiency
English	Professional working proficiency
Spanish	Limited working proficiency

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