

SALVATORE GRECO

Curriculum Vitae

Department of Control and Computer Engineering

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Bio

I am a third-year Ph.D. student at the Polytechnic University of Turin, Department of Control and Computer Engineering. My main research interests include Explainable Artificial Intelligence, Natural Language Processing, Fairness, and Deep Learning.

Education

- 2020–Present **PhD, Computer Science & Engineering**, *Polytechnic University of Turin*, Turin, Italy.
Explainable Artificial Intelligence techniques for Natural Language Processing tasks
- 2016–2019 **Master of Engineering, Computer Engineering**, *Polytechnic University of Turin*, Turin, Italy.
- 2013–2016 **Bachelor of Engineering, Computer Engineering**, *University of Modena and Reggio Emilia*, Modena, Italy.

Research Experience

[Nokia Bell Labs, Cambridge, UK](#)

- June,2023 – ***Interpretability, Fairness, and Bias mitigation in NLP classifiers.***
Sept,2023 Visiting Researcher in the Responsible AI group, with a research project on interpretability, fairness, and bias in NLP.
- June,2022 – ***Interpretability, Fairness, and Bias mitigation in NLP classifiers.***
Sept,2022 Visiting Researcher in the Responsible AI group, with a research project on interpretability, fairness, and bias in NLP.
- Supervisor : **Daniele Quercia**, *Director of Responsible AI*, Bell Labs Cambridge ([Personal Webpage](#))
[Polytechnic University of Turin, Turin, Italy](#)
- May,2019 – ***Developing Explainability techniques for text and image classifiers.***
Present Designing and developing explainable artificial intelligence techniques to explain the predictions of text and image classifiers by extracting interpretable features from the embedding representations of groups of words or pixels and measuring their importance through a perturbation process.
- Dec,2020 – ***Empowering Multi-lingual Inclusive Communication.***
Present Developing and training NLP solutions to foster inclusive language in formal communications. It is a multidisciplinary project that aims to produce a multi-language tool that identifies non-inclusive portions of texts and proposes inclusive reformulations.
- Nov,2020 – ***Concept Drift Detection in Deep Models for Unstructured Data.***
Present Designing and developing a framework for detecting concept drift and model degradation over time in text, image, and speech classifiers, providing explanations for these changes.
- Supervisor : **Tania Cerquitelli**, *Full Professor, Department of Control and Computer Engineering*, Polytechnic University of Turin ([Personal Webpage](#))

Publications

[Journal Articles](#)

- 2023 Francesco Ventura*, **Salvatore Greco***, Daniele Apiletti, and Tania Cerquitelli. Explaining deep convolutional models by measuring the influence of interpretable features in image classification. *Data Mining and Knowledge Discovery*, pages 1–58. Springer, 2023.

- 2022 Francesco Ventura*, **Salvatore Greco***, Daniele Apiletti, and Tania Cerquitelli. Trusting deep learning natural-language models via local and global explanations. *Knowledge and Information Systems*. Springer Science and Business Media LLC, June 2022.
- 2021 Simone Monaco, **Salvatore Greco**, Alessandro Farasin, Luca Colomba, Daniele Apiletti, Paolo Garza, Tania Cerquitelli, and Elena Baralis. Attention to fires: Multi-channel deep learning models for wildfire severity prediction. *Applied Sciences*, volume 11, 2021.
- 2021 Paolo Bethaz, Sara Cavaglioni, Sofia Cricelli, Elena Liore, Emanuele Manfredi, Stefano Salio, Andrea Regalia, Fabrizio Conicella, **Salvatore Greco**, and Tania Cerquitelli. Empowering commercial vehicles through data-driven methodologies. *Electronics*, volume 10, 2021.

In Conference Proceedings

- 2023 Moreno La Quatra, **Salvatore Greco**, Luca Cagliari, and Tania Cerquitelli. Inclusively: an ai-based assistant for inclusive writing. In *ECML-PKDD, Demo Track*, pages 1–5. Springer, 2023.
- 2023 Giuseppe Gallipoli*, Moreno La Quatra*, Daniele Rege Cambrin*, **Salvatore Greco***, and Luca Cagliari. DANTE at geolingit: Dialect-aware multi-granularity pre-training for locating tweets within italy. In *Proceedings of the Eighth Evaluation Campaign of Natural Language Processing and Speech Tools for Italian. Final Workshop (EVALITA 2023), Parma, Italy, September 7th-8th, 2023*, volume 3473 of *CEUR Workshop Proceedings*. CEUR-WS.org, 2023.
- 2022 Raus, Rachele, Tonti, Michela, Cerquitelli, Tania, Cagliari, Luca, Attanasio, Giuseppe, La Quatra, Moreno, and **Salvatore Greco**. L'analyse du discours et l'intelligence artificielle pour réaliser une écriture inclusive : le projet emimic. *SHS Web Conf.*, volume 138, page 01007, 2022.
- 2022 Luca Colomba, Alessandro Farasin, Simone Monaco, **Salvatore Greco**, Paolo Garza, Daniele Apiletti, Elena Baralis, and Tania Cerquitelli. A dataset for burned area delineation and severity estimation from satellite imagery. In *Proceedings of the 31st ACM International Conference on Information; Knowledge Management*, New York, NY, USA, 2022. Association for Computing Machinery.
- 2021 **Salvatore Greco** and Tania Cerquitelli. Drift lens: Real-time unsupervised concept drift detection by evaluating per-label embedding distributions. In *2021 International Conference on Data Mining Workshops (ICDMW)*, pages 341–349, 2021.
- 2021 Giuseppe Attanasio, **Salvatore Greco**, Moreno La Quatra, Luca Cagliari, Michela Tonti, Tania Cerquitelli, and Rachele Raus. E-mimic: Empowering multilingual inclusive communication. In *2021 IEEE International Conference on Big Data (Big Data)*, pages 4227–4234, 2021.

* Equal Contribution

Teaching Experience

- Spring, 2023 **Data Science & Machine Learning for Engineering Applications***, MD, Polytechnic of Turin.
- Spring, 2023 **Databases**, BD, Polytechnic of Turin.
- Spring, 2022 **Applied Data Science Project**, MD, Polytechnic of Turin.
- Spring, 2022 **Databases**, BD, Polytechnic of Turin.

* I have been a major contributor in shaping this course, launched in February 2023. My responsibilities included designing and creating the course's laboratory materials, exercises, and homework assignments. This Master's degree course provides students with a comprehensive introduction to Python programming, and fundamental data science and machine learning techniques.

Personal Development

Summer School

July, 2023 **Oxford Machine Learning Summer School**, Oxford.
I have been selected and attended in person the NLP & Finance track of the Oxford Machine Learning Summer School (OxML2023), organized by AI for Global Goals and in partnership with CIFAR and the University of Oxford's Deep Medicine Program.

Online Courses

2023	Generative AI with Large Language Models ,	<i>Coursera.</i>
2023	Mathematics for Machine Learning and Data Science Specialization ,	<i>Coursera.</i>
2023	Machine Learning Engineering for Production (MLOps) Specialization ,	<i>Coursera.</i>
2021	AI for Medicine Specialization ,	<i>Coursera.</i>
2021	Natural Language Processing Specialization ,	<i>Coursera.</i>
2021	TensorFlow: Advanced Techniques Specialization ,	<i>Coursera.</i>
2021	Generative Adversarial Networks (GANs) Specialization ,	<i>Coursera.</i>
2020	Python 3 Programming ,	<i>Coursera.</i>
2020	TensorFlow: Data and Deployment Specialization ,	<i>Coursera.</i>
2020	DeepLearning.AI TensorFlow Developer Specialization ,	<i>Coursera.</i>
2019	AI For Everyone Course ,	<i>Coursera.</i>
2019	Deep Learning Specialization ,	<i>Coursera.</i>

Other Working Experience

Feb,2019 – **IT Junior Analyst**, *Intesa SanPaolo*, Turin, Italy.

Oct,2020 Before completing my master's degree, I transitioned to a full-time role with project management responsibilities within the IT department of a well-established Italian bank. This experience equipped me with enduring skills in project and time management, as well as the ability to maintain client relationships.

Key Skills

Programming Languages	Python, Java, C, C++
Frameworks	PyTorch, Keras, TensorFlow, Hadoop, Spark, Flask
Libraries	HuggingFace, Pandas, Numpy, NLTK, SpaCy, Scikit-Learn, Gensim
Web Development	SQL, Javascript, HTML, CSS

Volunteer Activities

2023 **ECML PKDD Conference 2023**, Turin.
Involved as a volunteer in the organization of the European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases held in Turin from September 18 to 22, 2023. This experience has enriched me in the organization of research-related activities such as conferences.

2017 - 2019 **ESN Torino - Erasmus Student Network**, Turin.
Engaged as an active volunteer within the Erasmus Student Network association, facilitating international student integration and organizing cultural and social events. This experience enhanced my teamwork, interpersonal, communication, and adaptability skills in a multicultural environment.

Language Skills

Italian, First Language.

English, Expert User.