

# Tommaso Dolci


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## Bio

Pre-Doc researcher at TU Wien and Marie Skłodowska-Curie doctoral fellow under the supervision of Katja Hose. Previously, I worked as Responsible AI Engineer in Accenture, and as Research Assistant in Politecnico di Milano and Lero – the Irish Research Centre for Software, collaborating with Letizia Tanca, Luciano Baresi and Bashar Nuseibeh. I hold a MSc in Computer Science and Engineering from Politecnico di Milano with a thesis on social bias in language models. My main interests concern **LLMs**, **responsible AI**, and **data science**. I am an advocate of Digital Humanism, the initiative to preserve human agency in digital technology.

## EDUCATION

<b>Politecnico di Milano</b> MSc in Computer Science and Engineering – Score: 110/110 – Final thesis on social bias evaluation and mitigation in language models  Supervisor: Prof. Letizia Tanca	Milan, Italy 2018–2021
<b>Politechnika Wrocławska</b> International Mobility, Faculty of Computer Science and Management	Wrocław, Poland 2019–2020
<b>Politecnico di Milano</b> BSc in Engineering of Computing Systems	Milan, Italy 2015–2018
<b>Liceo Galileo Galilei</b> High School Diploma in Classical Studies	Legnano, Italy 2010–2015

## EXPERIENCE

<b>TU Wien</b> Pre-Doc Researcher, MSCA Doctoral Fellow – ARMADA – Horizon/MSCA project on factuality and hallucination in LLMs supported by structured knowledge Supervisor: Prof. Katja Hose.	Vienna, Austria Oct 2025–Current
<b>Accenture – RAI/LLM Center of Excellence R&amp;D unit</b> Responsible AI Engineer, Prompt Engineer – Responsible AI, quantitative testing, red teaming of GenAI, agentic AI and multi-agent systems.	Milan, Italy Sep 2024–Sep 2025
<b>Lero – the Irish Research Centre for Software</b> Post-Graduate Researcher – Responsible software engineering for digital humanism, from requirements to testing of ML-based software Supervisor: Prof. Bashar Nuseibeh.	Limerick, Ireland Sep 2023–Apr 2024
<b>Politecnico Di Milano</b> Research Assistant – EMELIOT – Project of national interest (PRIN) on ML-based software, cloud computing, and federated learning Supervisor: Prof. Luciano Baresi. – Health Big Data – Government-funded project to develop federated architectures for storage and use of clinical data Supervisor: Profs. Letizia Tanca and Marco Gribaudo.	Milan, Italy Feb 2022–Aug 2023

Author of 17 peer-reviewed articles, including 2 first-author Q1 journals. 82 citations on Scholar and 5 h-index as of Oct '25.

#### JOURNALS

- [A1] F. Azzalini, **T. Dolci**, and M. Vagaggini, “An interpretable deep learning framework for predicting hospital readmissions from electronic health records”, *Smart Health*, vol. 37, p. 100581, 2025. doi: 10.1016/j.smhl.2025.100581.
- [A2] **T. Dolci**, L. Amata, C. Manco, F. Azzalini, M. Gribaudo, and L. Tanca, “Tools for healthcare data lake infrastructure benchmarking”, *Information Systems Frontiers*, pp. 1–22, 2024. doi: 10.1007/s10796-023-10468-5.
- [A3] L. Baresi, **T. Dolci**, G. Quattrocchi, and N. Rasi, “A multi-faceted analysis of the performance variability of virtual machines”, *Software: Practice and Experience*, vol. 53(11), pp. 2067–2091, 2023. doi: 10.1002/spe.3244.
- [A4] **T. Dolci**, F. Azzalini, and M. Tanelli, “Improving gender-related fairness in sentence encoders: A semantics-based approach”, *Data Science and Engineering*, vol. 8, pp. 177–195, 2023. doi: 10.1007/s41019-023-00211-0.

#### INTERNATIONAL CONFERENCES AND WORKSHOPS

- [B1] L. Baresi, **T. Dolci**, and I. Wehbe, “On assessing heterogeneity management solutions in federated learning systems”, in *2024 IEEE/ACM 17th International Conference on Utility and Cloud Computing (UCC)*, IEEE, 2024, pp. 517–522.
- [B2] L. Baresi, M. Camilli, **T. Dolci**, and G. Quattrocchi, “A conceptual framework for quality assurance of llm-based socio-critical systems”, in *39th IEEE/ACM International Conference on Automated Software Engineering (ASE)*, IEEE/ACM, 2024, pp. 2314–2318.
- [B3] C. Criscuolo and **T. Dolci**, “Exploring fairness interpretability with FairnessFriend: A chatbot solution”, in *IEEE 40th International Conference on Data Engineering Workshops (ICDEW)*, IEEE, 2024, pp. 246–253.
- [B4] D. Azzalini\*, F. Azzalini\*, C. Criscuolo\*, **T. Dolci\***, D. Martinenghi, and S. Amer-Yahia, “Loss compensation in multi-session recommendation under limited item availability”, in *Proceedings of the 27th International Conference on Extending Database Technology (EDBT)*, 2024, pp. 522–533.
- [B5] T. Covioli, **T. Dolci**, F. Azzalini, D. Piantella, E. Barbierato, and M. Gribaudo, “Workflow characterization of a big data system model for healthcare through multiformalism”, in *Computer Performance Engineering and Stochastic Modelling: EPEW/ASMTA 2023*, Springer, 2023, pp. 279–293.
- [B6] C. Manco, **T. Dolci**, F. Azzalini, E. Barbierato, M. Gribaudo, and L. Tanca, “HEALER: A data lake architecture for healthcare”, in *Proceedings of the EDBT/ICDT Workshops*, vol. 3379, CEUR-WS.org, 2023.
- [B7] C. Criscuolo, **T. Dolci**, and M. Salnitri, “Towards assessing data bias in clinical trials”, in *Heterogeneous Data Management, Poly-stores, and Analytics for Healthcare: VLDB Workshops*, Springer, 2023, pp. 57–74.
- [B8] D. Azzalini\*, F. Azzalini\*, C. Criscuolo\*, **T. Dolci\***, D. Martinenghi, and S. Amer-Yahia, “SoCRATE: A recommendation system with limited-availability items”, in *Proceedings of the 31st ACM International Conference on Information and Knowledge Management (CIKM)*, ACM, 2022, pp. 4793–4797.
- [B9] **T. Dolci**, “Fine-tuning language models to mitigate gender bias in sentence encoders”, in *2022 IEEE Eighth International Conference on Big Data Computing Service and Applications*, IEEE, 2022, pp. 175–176.

#### NATIONAL CONFERENCES

- [C1] C. Criscuolo, **T. Dolci**, and M. Salnitri, “Mitigating unfairness in machine learning: A taxonomy and an evaluation pipeline”, in *32nd Symposium on Advanced Database System*, CEUR-WS.org, 2024, pp. 217–226.
- [C2] M. Bavaro, **T. Dolci**, and D. Piantella, “Biovec-ita: Biomedical word embeddings for the italian language”, in *31st Symposium on Advanced Database System*, CEUR-WS.org, 2023, pp. 505–513.
- [C3] D. Azzalini, F. Azzalini, C. Criscuolo, **T. Dolci**, D. Martinenghi, L. Tanca, and S. Amer-Yahia, “SoCRATE: A framework for compensating users over time with limited availability recommendations”, in *30th Symposium on Advanced Database System*, CEUR-WS.org, 2022, pp. 538–545.
- [C4] F. Azzalini, **T. Dolci**, and M. Tanelli, “Bias score: Estimating gender bias in sentence representations”, in *30th Symposium on Advanced Database System*, CEUR-WS.org, 2022, pp. 554–561.

\* = equal contribution from the authors.

## ACADEMIC ROLES

**Teaching Assistant** at University of Limerick:

*Software Testing and Inspection*

Fall 2023

**Teaching Assistant** at Politecnico Di Milano:

*Computer Science A for Mathematical Engineering*

Fall 2022

*Data Bases 1 for Computer Science Engineering*

Fall 2022

*Communication and Argumentation for Engineering*

Spring 2022

**Thesis co-advisor** of 10 MSc students at Politecnico di Milano. Five most recent entries:

J. Huang, *Fairness in Machine Learning: Unifying Statistical and Causal Perspectives*

Oct 2024

M. Li, *Approaches to Unfairness Mitigation in AI: An Exploratory Research*

Jul 2024

D.O. Vittorio, *A Survey on Fairness: The Influence of Protected Attributes on Machine Learning Algorithms*

Apr 2024

A. Restelli, *Dynamic Selection Techniques for Federated Learning*

Dec 2023

F. Petroli, *Religious and Ethnic Bias in Word Vector Spaces*

Dec 2023

**PC Member:**

WALS 2023, CMLS 2023/ 2024, CIKM 2024 (Demo)

**Reviewer:**

TOSEM, ICTAI, HIJ

**Sub-reviewer:**

ICDE, SIGMOD, ASE

## SKILLS

- **OS:** Windows, Linux, WSL
- **Programming:** Python, C, Java, SQL, HTML, CSS, JavaScript
- **Libraries:** HuggingFace, LangChain, Pandas, Sklearn, NumPy, Langchain, Tensorflow, PyTorch, Matplotlib
- **Additional:** ~~TeX~~ Git, VS Code, Colab, Jupyter, Jira, MS Office and Project, UML, Power BI, Photoshop, MS Clipchamp

## LANGUAGES

- **Italian:** native speaker
- **English:** excellent user
  - IELTS Academic - Overall Score: 8 Oct 2017
- Limited understanding of **Spanish** and **German**.

## REFERENCE CONTACTS

- **Letizia Tanca**, Full Professor at Politecnico di Milano @ [letizia.tanca@polimi.it](mailto:letizia.tanca@polimi.it)
- **Bashar Nuseibeh**, Full Professor at The Open University @ [bashar.nuseibeh@open.ac.uk](mailto:bashar.nuseibeh@open.ac.uk)
- **Marco Gribaudo**, Associate Professor at Politecnico di Milano @ [marco.gribaudo@polimi.it](mailto:marco.gribaudo@polimi.it)

## WORKSHOPS

**Fairness and Machine Learning for Health**

Organised by Politecnico di Milano

Milan, Italy

Jun 2022

**“Can Machines Save the World?” – Digital Humanism Fellowship Conference**

Organised by IWM and TU Wien

Vienna, Austria

Nov 2023

## SEASONAL SCHOOLS

**TU Wien**

2<sup>nd</sup> ACM Summer School on *Digital Humanism*

Vienna, Austria

September 2023

**University of Florida**

Autumn School on *Situation Awareness in Cognitive Technologies*

Remote

November 2022

**TU Wien**

Summer School on *Digital Humanism*

Vienna, Austria

September 2022

**Peter the Great Polytechnic University**

Summer School on *Energy Efficiency and Sustainable Development*

St. Petersburg, Russia

August 2019

## ★ SCHOLARSHIPS & GRANTS

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- Doctoral Fellowship under the Horizon-MSCA project ARMADA, EU grant number 101168951 2025
- Research scholarship at Lero under SFI grant number 13/RC/2094\_2 2023
- Registration fee scholarship at 2<sup>nd</sup> ACM Digital Humanism Summer School 2023
- Travel scholarship at Autumn School on Situation Awareness in Cognitive Technologies *[not utilised]* 2022
- Scholarship for academic merits from Fondazione Famiglia Legnanese 2015

## 💡 INTERESTS

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- Practised competitive **fencing** for 15+ years, play **football** regularly, and co-organises a local **beach volley** league involving 100+ people. Currently working on my 10km marathon time (48min).
- Subscriber to **La Scala** for 3+ years. I like chess too! (Lichess ELO ~1500 blitz and bullet)
- I have been **representative** of international students for UL Fencing Club, **support buddy** for foreign students in Politecnico di Milano, and **campus ambassador** in Politecnico di Milano.