

Maurizio Ferrari Dacrema

ASSISTANT PROFESSOR

Department of Electronics, Information and Bioengineering, Politecnico di Milano, Italy

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Education

Politecnico di Milano

PHD IN INFORMATION TECHNOLOGY

- Advisor: Prof. Paolo Cremonesi
- Thesis: An assessment of reproducibility and methodological issues in neural recommender systems research

Milano, Italy

2016 - 2020

Politecnico di Milano

MS IN COMPUTER SCIENCE ENGINEERING

- Advisor: Prof. Francesco Amigoni
- Thesis: A method to find the optimal structure of a multiagent system tasked to identify anomalies in space applications

Milano, Italy

2013 - 2016

Politecnico di Milano

BS IN COMPUTER SCIENCE ENGINEERING

Milano, Italy

2009 - 2013

Career

- 2025 **Visiting Researcher**, Superconducting Quantum Materials and Systems (SQMS) Center - National Quantum Information Science (QIS) Research Center, Fermi National Accelerator Laboratory, USA (March-May)
- 2023-present **Assistant Professor**, Politecnico di Milano, Italy
- 2020-2023 **Postdoctoral Researcher**, Politecnico di Milano, Italy
- 2019 **Visiting PhD Student**, Alpen-Adria-Universität Klagenfurt, Austria (March-June)
- 2016-2020 **PhD Student**, Politecnico di Milano, Italy
- 2014-present **Evaluation Expert**, Quality assurance of national and European higher education institutions

Research Experience

RESEARCH INTEREST

- Quantum Computing:** design of machine learning methods to support the development of quantum computing, including the automatic construction and optimization of ansatzes, qubit mapping, and noise mitigation.
- Recommender Systems:** design, evaluation and reproducibility of algorithms for recommender systems

SCIENTIFIC PRODUCTIVITY

- Total Publications:** 83 peer-reviewed publications
- Top-ranked Journals:** 8 publications on top-ranked SCIMAGO Q1 journals
- Top-ranked Conferences:** 21 publications on top-ranked A*/A CORE conferences
- Impact**
 - Google Scholar:** h-index 18 and 2.280 citations
 - Scopus:** h-index 14 and 1.246 citations
 - SciVal:** Field-Weighted Citation Impact (FWCI) for first-author papers: **5,5**

FUNDED PROJECTS AND INTERNATIONAL COLLABORATIONS

- 2025-27 **Tech Europe Foundation (TEF) Postdoctoral Programme, project “Quantum Circuit Foundational Model (QCFM)”**, Funding 160.000 €. Principal investigator
- 2025-29 **Digital Europe Programme, project “EuroHPC Virtual Training Academy”**, Funding 377.000 €, Work Package 6 leader
- 2025 **Next Generation Internet Transatlantic Fellowship Program (NGI Enrichers, Horizon Europe)**, Funding 14.400 € for project “Machine Learning for Quantum Circuit Generation”, including a 3-month visiting period (March-May) at the Superconducting Quantum Materials and Systems (SQMS) Center, Fermi National Accelerator Laboratory, USA. Principal investigator¹
- 2023-present **European Master for High Performance Computing (Horizon 2020), project “EUMaster4HPC”**, Funding 640.000 €, Work Package 3 leader
- 2022 **EIT Digital Academy (Horizon 2020), project “Programme Execution of the Data Science programme”**, Funding 32.000 €, Participant
- 2021 Collaboration with **Amazon Braket, Moviri SpA, ContentWise SpA**, for the development and benchmarking of a recommendation engine with quantum annealers based on my previous research paper [10]. The results are published in the AWS Quantum Technologies Blog²
- 2019 Visiting PhD student at the **Alpen-Adria-Universität Klagenfurt** (March-June), this collaboration led to paper [43] which won the **Best Paper Award** at the 13th ACM Conference on Recommender Systems (RecSys)
- 2018 **EIT Digital Blended Master (Horizon 2020), project “FlipBot as an AI teaching assistant”**, Funding 175.000 €, Participant
- 2017 **EIT Digital Innovation Factory (Horizon 2020), project “Street Smart Retail”**, Funding 308.000 €, Participant
 EIT Digital Academy (Horizon 2020), project “Programme Execution of the Data Science programme”, Funding 47.500 €, Participant
- 2025 **CINECA, Italian SuperComputing Resource Allocation (ISCRA)**, Computing resources for projects: “Machine Learning Methods for Resource-Efficient State Preparation in Bosonic Quantum Computing” (ML4BQC), and “Diffusion Models with Guidance for Recommender Systems” (DMG4RS) [1]. Cumulative awarded budget 18.000 GPU hours, Principal investigator
 ESA Network of Resources (NoR), Computing resources for project: “Reinforcement Learning and Generative Approaches for Quantum Circuit Design”. Awarded budget 10.000 €, Principal investigator
- 2023-24 **CINECA, Italian SuperComputing Resource Allocation (ISCRA)**, Quantum Computing resources for projects: “Machine learning for a more efficient minor embedding” (ML4MINOR) [2, 51], “Quantum Annealing for Feature Selection” (QA4FS) [35, 64], and “Impact of Problem Characteristics on the Effectiveness of Quantum Annealing” (PC4QA) [5, 62, 29]. Approximate cumulative budget 15.000 €, Principal investigator

¹<https://enrichers.ngi.eu/fellow/maurizio-ferrari-dacrema/>

²<https://aws.amazon.com/it/blogs/quantum-computing/implementing-a-recommendation-engine-with-amazon-braket/>

Awards and Recognitions

- 2025 **1st Prize as Academic Team at the ACM RecSys Challenge [48]**, sponsored by **Synerise** at the 19th ACM Conference on Recommender Systems (RecSys)
- 2024 **1st Prize as Academic Team at the ACM RecSys Challenge [54]**, sponsored by **Ekstra Bladet** at the 18th ACM Conference on Recommender Systems (RecSys)
Seal of Excellence, for the best non-funded project proposals at the **IDEA League Fellowship Exchange Program 2024-2025**
- 2023 **1st Prize as Academic Team at the ACM RecSys Challenge [56]**, sponsored by **ShareChat** at the 17th ACM Conference on Recommender Systems (RecSys)
- 2022 **Best Reviewer**, 31st ACM International Conference on Information and Knowledge Management (CIKM)
- 2021 **“Prof. Florian Daniel” Award**, best doctoral thesis in Computer Science Engineering, DEIB, Politecnico di Milano, Italy
1st Prize as Academic Team at the ACM RecSys Challenge [68], sponsored by **Twitter** at the 15th ACM Conference on Recommender Systems (RecSys)
- 2020 **Best Reviewer Nomination**, 14th ACM Conference on Recommender Systems (RecSys)
- 2019 **Best Paper Award**, for paper “Are We Really Making Much Progress? A Worrying Analysis of Recent Neural Recommendation Approaches” [43], at the 13th ACM Conference on Recommender Systems (RecSys)
Best Reviewer Nomination, 13th ACM Conference on Recommender Systems (RecSys)
- 2018 **2nd place in the ACM RecSys Challenge [75]**, sponsored by **Spotify** at the 12th ACM Conference on Recommender Systems (RecSys)

Publication List

Journal Publication

- [1] Michael Benigni, Maurizio Ferrari Dacrema, and Dietmar Jannach. 2026. Diffusion recommender models and the illusion of progress: A concerning study of reproducibility and a conceptual mismatch. *ACM Transactions on Recommender Systems*. (**Just Accepted**). arXiv: 2505.09364.
- [2] Riccardo Nembrini, Maurizio Ferrari Dacrema, and Paolo Cremonesi. 2026. Minor embedding for quantum annealing with reinforcement learning. *Quantum Machine Intelligence*. (**Just Accepted**). arXiv: 2507.16004.
- [3] Maurizio Ferrari Dacrema, Michael Benigni, and Nicola Ferro. 2025. Reproducibility and artifact consistency of the SIGIR 2022 recommender systems papers based on message passing. *ACM Transactions on Information Systems*. (**Just Accepted**). DOI: 10.1145/3772275. arXiv: 2503.07823.
- [4] Fernando Benjamín Pérez Maurera, Maurizio Ferrari Dacrema, Pablo Castells, and Paolo Cremonesi. 2025. Impression-aware recommender systems. *ACM Transactions on Recommender Systems*, 3, 4, 48:1–48:46. DOI: 10.1145/3712292. arXiv: 2308.07857.
- [5] Riccardo Pellini and Maurizio Ferrari Dacrema. 2024. Analyzing the effectiveness of quantum annealing with meta-learning. *Quantum Machine Intelligence*, 6, 2, 48. DOI: 10.1007/S42484-024-00179-8. arXiv: 2408.00570.
- [6] Cesare Bernardis, Maurizio Ferrari Dacrema, Fernando Benjamín Pérez Maurera, Massimo Quadrana, Mario Scriminaci, and Paolo Cremonesi. 2022. From data analysis to intent-based recommendation: an industrial case study in the video domain. *IEEE Access*, 10, 14779–14796. DOI: 10.1109/ACCESS.2022.3148434.
- [7] Costantino Carugno, Maurizio Ferrari Dacrema, and Paolo Cremonesi. 2022. Evaluating the job shop scheduling problem on a d-wave quantum annealer. *Nature Scientific Reports*, 12, 1, (April 2022), 6539–6550. ISSN: 2045-2322. DOI: 10.1038/s41598-022-10169-0.
- [8] Maurizio Ferrari Dacrema, Nicolò Felicioni, and Paolo Cremonesi. 2022. Offline evaluation of recommender systems in a user interface with multiple carousels. *Frontiers Big Data*, 5, 21 pages. ISSN: 2624-909X. DOI: 10.3389/fdata.2022.910030.
- [9] Maurizio Ferrari Dacrema, Simone Boglio, Paolo Cremonesi, and Dietmar Jannach. 2021. A troubling analysis of reproducibility and progress in recommender systems research. *ACM Transactions on Information Systems*, 39, 2, 20:1–20:49. DOI: 10.1145/3434185. arXiv: 1911.07698.
- [10] Riccardo Nembrini, Maurizio Ferrari Dacrema, and Paolo Cremonesi. 2021. Feature selection for recommender systems with quantum computing. *Entropy*, 23, 8, 970. DOI: 10.3390/e23080970. arXiv: 2110.05089.

- [11] Yashar Deldjoo, Maurizio Ferrari Dacrema, Mihai Gabriel Constantin, Hamid Eghbal-zadeh, Stefano Cereda, Markus Schedl, Bogdan Ionescu, and Paolo Cremonesi. 2019. Movie genome: alleviating new item cold start in movie recommendation. *User Modeling and User-Adapted Interaction*, 29, 2, 291–343. doi: 10.1007/s11257-019-09221-y.

Invited Conference Paper

- [12] Maurizio Ferrari Dacrema, Paolo Cremonesi, and Dietmar Jannach. 2020. Methodological issues in recommender systems research (extended abstract). In *Proceedings of the Twenty-Ninth International Joint Conference on Artificial Intelligence, IJCAI 2020*. Christian Bessiere, editor. ijcai.org, 4706–4710. doi: 10.24963/ijcai.2020/650.

Book Chapter

- [13] Maurizio Ferrari Dacrema, Iván Cantador, Ignacio Fernández-Tobías, Shlomo Berkovsky, and Paolo Cremonesi. 2022. Design and evaluation of cross-domain recommender systems. In *Recommender Systems Handbook*. Francesco Ricci, Lior Rokach, and Bracha Shapira, editors. Springer US, New York, NY, 485–516. ISBN: 978-1-0716-2197-4. doi: 10.1007/978-1-0716-2197-4_13.
- [14] Paolo Cremonesi, Franca Garzotto, and Maurizio Ferrari Dacrema. 2018. User preference sources: explicit vs. implicit feedback. In *Collaborative Recommendations - Algorithms, Practical Challenges and Applications*. Shlomo Berkovsky, Iván Cantador, and Domonkos Tikk, editors. WorldScientific, 233–252. doi: 10.1142/9789813275355_0007.

Conference Paper

- [15] Andrea Pasin, Maurizio Ferrari Dacrema, Paolo Cremonesi, Washington Cunha, Marcos André Gonçalves, and Nicola Ferro. 2026. QuantumCLEF 2026 - the third edition of the quantum computing lab at CLEF. In *Advances in Information Retrieval - 48th European Conference on Information Retrieval, ECIR 2026. (To Appear)*.
- [16] Riccardo Pellini and Maurizio Ferrari Dacrema. 2025. On the Correct Implementation of the Walsh Series Loader. In *2025 IEEE International Conference on Quantum Computing and Engineering (QCE)*. IEEE Computer Society, Los Alamitos, CA, USA, (September 2025), 276–281. doi: 10.1109/QCE65121.2025.00039. arXiv: 2502.05193.
- [17] Maurizio Ferrari Dacrema and Paolo Cremonesi. 2025. A hands-on dive into quantum computing for recommender systems. In *Proceedings of the Nineteenth ACM Conference on Recommender Systems, RecSys 2025, Prague, Czech Republic, September 22-26, 2025*. Mária Bielíková, Pavel Kordík, Markus Schedl, Marco de Gemmis, Sole Pera, Rodrigo Alves, Olivier Jeunen, and Vito Ostuni, editors. ACM, 1414–1416. doi: 10.1145/3705328.3748006.
- [18] Andrea Pasin, Maurizio Ferrari Dacrema, Washington Cunha, Marcos André Gonçalves, Paolo Cremonesi, and Nicola Ferro. 2025. Overview of QuantumCLEF 2025: the second quantum computing challenge for information retrieval and recommender systems at CLEF. In *Experimental IR Meets Multilinguality, Multimodality, and Interaction - 16th International Conference of the CLEF Association, CLEF 2025, Madrid, Spain, September 9-12, 2025, Proceedings (Lecture Notes in Computer Science)*. Jorge Carrillo-de-Albornoz, Alba García Seco de Herrera, Julio Gonzalo, Laura Plaza, Josiane Mothe, Florina Piroi, Paolo Rosso, Damiano Spina, Guglielmo Faggioli, and Nicola Ferro, editors. Volume 16089. Springer, 412–435. doi: 10.1007/978-3-032-04354-2_22.
- [19] Faisal Shehzad, Maurizio Ferrari Dacrema, and Dietmar Jannach. 2025. A worrying reproducibility study of intent-aware recommendation models. In *Proceedings of the 48th International ACM SIGIR Conference on Research and Development in Information Retrieval, SIGIR 2025, Padua, Italy, July 13-18, 2025*. Nicola Ferro, Maria Maistro, Gabriella Pasi, Omar Alonso, Andrew Trotman, and Suzan Verberne, editors. ACM, 3155–3164. doi: 10.1145/3726302.3730307. arXiv: 2501.10143.
- [20] Andrea Pasin, Maurizio Ferrari Dacrema, Paolo Cremonesi, Washington Cunha, Marcos André Gonçalves, and Nicola Ferro. 2025. QuantumCLEF 2025 - the second edition of the quantum computing lab at CLEF. In *Advances in Information Retrieval - 47th European Conference on Information Retrieval, ECIR 2025, Lucca, Italy, April 6-10, 2025, Proceedings, Part V (Lecture Notes in Computer Science)*. Claudia Hauff, Craig Macdonald, Dietmar Jannach, Gabriella Kazai, Franco Maria Nardini, Fabio Pinelli, Fabrizio Silvestri, and Nicola Tonellotto, editors. Volume 15576. Springer, 450–458. doi: 10.1007/978-3-031-88720-8_66.
- [21] Andrea Pasin, Maurizio Ferrari Dacrema, Paolo Cremonesi, and Nicola Ferro. 2024. Overview of QuantumCLEF 2024: the quantum computing challenge for information retrieval and recommender systems at CLEF. In *Experimental IR Meets Multilinguality, Multimodality, and Interaction - 15th International Conference of the CLEF Association, CLEF 2024, Grenoble, France, September 9-12, 2024, Proceedings, Part II (Lecture Notes in Computer Science)*. Lorraine Goeriot, Philippe Mulhem, Georges Quénot, Didier Schwab, Giorgio Maria Di Nunzio, Laure Soulier, Petra Galuscáková, Alba García Seco de Herrera, Guglielmo Faggioli, and Nicola Ferro, editors. Volume 14959. Springer, 260–282. doi: 10.1007/978-3-031-71908-0_12.

- [22] Costantino Carugno, Maurizio Ferrari Dacrema, and Paolo Cremonesi. 2024. Adaptive learning for quantum linear regression. In *IEEE International Conference on Quantum Computing and Engineering, QCE 2024, Montreal, QC, Canada, September 15-20, 2024*. Marek Osinski, Brian La Cour, and Lia Yeh, editors. IEEE, 1595–1599. doi: 10.1109/QCE60285.2024.00186.
- [23] Maurizio Ferrari Dacrema, Andrea Pasin, Paolo Cremonesi, and Nicola Ferro. 2024. Using and evaluating quantum computing for information retrieval and recommender systems. In *Proceedings of the 47th International ACM SIGIR Conference on Research and Development in Information Retrieval, SIGIR 2024, Washington DC, USA, July 14-18, 2024*. Grace Hui Yang, Hongning Wang, Sam Han, Claudia Hauff, Guido Zuccon, and Yi Zhang, editors. ACM, 3017–3020. doi: 10.1145/3626772.3661378.
- [24] Andrea Pasin, Maurizio Ferrari Dacrema, Paolo Cremonesi, and Nicola Ferro. 2024. QuantumCLEF - Quantum computing at CLEF. In *Advances in Information Retrieval - 46th European Conference on Information Retrieval, ECIR 2024, Glasgow, UK, March 24-28, 2024, Proceedings, Part V* (Lecture Notes in Computer Science). Nazli Goharian, Nicola Tonellotto, Yulan He, Aldo Lipani, Graham McDonald, Craig Macdonald, and Iadh Ounis, editors. Volume 14612. Springer, 482–489. doi: 10.1007/978-3-031-56069-9_66.
- [25] Maurizio Ferrari Dacrema, Andrea Pasin, Paolo Cremonesi, and Nicola Ferro. 2024. Quantum computing for information retrieval and recommender systems. In *Advances in Information Retrieval - 46th European Conference on Information Retrieval, ECIR 2024, Glasgow, UK, March 24-28, 2024, Proceedings, Part V* (Lecture Notes in Computer Science). Nazli Goharian, Nicola Tonellotto, Yulan He, Aldo Lipani, Graham McDonald, Craig Macdonald, and Iadh Ounis, editors. Volume 14612. Springer, 358–362. doi: 10.1007/978-3-031-56069-9_47.
- [26] Maurizio Ferrari Dacrema, Pablo Castells, Justin Basilico, and Paolo Cremonesi. 2023. Workshop on learning and evaluating recommendations with impressions (LERI). In *Proceedings of the 17th ACM Conference on Recommender Systems, RecSys 2023, Singapore, Singapore, September 18-22, 2023*. Jie Zhang, Li Chen, Shlomo Berkovsky, Min Zhang, Tommaso Di Noia, Justin Basilico, Luiz Pizzato, and Yang Song, editors. ACM, 1248–1251. doi: 10.1145/3604915.3608756.
- [27] Gloria Turati, Maurizio Ferrari Dacrema, and Paolo Cremonesi. 2023. Benchmarking adaptative variational quantum algorithms on QUBO instances. In *IEEE International Conference on Quantum Computing and Engineering, QCE 2023, Bellevue, WA, USA, September 17-22, 2023*. Brian La Cour, Lia Yeh, and Marek Osinski, editors. IEEE, 407–413. doi: 10.1109/QCE57702.2023.00053. arXiv: 2308.01789.
- [28] Andrea Pasin, Maurizio Ferrari Dacrema, Paolo Cremonesi, and Nicola Ferro. 2023. qCLEF: A proposal to evaluate quantum annealing for information retrieval and recommender systems. In *Experimental IR Meets Multilinguality, Multimodality, and Interaction - 14th International Conference of the CLEF Association, CLEF 2023, Thessaloniki, Greece, September 18-21, 2023, Proceedings* (Lecture Notes in Computer Science). Avi Arampatzis, Evangelos Kanoulas, Theodora Tsikrika, Stefanos Vrochidis, Anastasia Giachanou, Dan Li, Mohammad Aliannejadi, Michalis Vlachos, Guglielmo Faggioli, and Nicola Ferro, editors. Volume 14163. Springer, 97–108. doi: 10.1007/978-3-031-42448-9_9.
- [29] Riccardo Pellini, Maurizio Ferrari Dacrema, and Paolo Cremonesi. 2023. Assessing how the structure of the QUBO problem affects the effectiveness of quantum annealing. In *Adiabatic Quantum Computing, AQC 2023, Albuquerque, New Mexico, USA, June 19-23, 2023*, 2 pages.
- [30] Nicolò Felicioni, Maurizio Ferrari Dacrema, Marcello Restelli, and Paolo Cremonesi. 2022. Off-policy evaluation with deficient support using side information. In *Advances in Neural Information Processing Systems*. S. Koyejo, S. Mohamed, A. Agarwal, D. Belgrave, K. Cho, and A. Oh, editors. Volume 35. Curran Associates, Inc., 30250–30264. ISBN: 9781713871088. https://proceedings.neurips.cc/paper_files/paper/2022/file/c32be49c09eec3aad1f2bb587543e7f6-Paper-Conference.pdf.
- [31] Riccardo Nembrini, Costantino Carugno, Maurizio Ferrari Dacrema, and Paolo Cremonesi. 2022. Towards recommender systems with community detection and quantum computing. In *RecSys '22: Sixteenth ACM Conference on Recommender Systems, Seattle, WA, USA, September 18 - 23, 2022*. Jennifer Golbeck, F. Maxwell Harper, Vanessa Murdock, Michael D. Ekstrand, Bracha Shapira, Justin Basilico, Keld T. Lundgaard, and Even Oldridge, editors. ACM, 579–585. doi: 10.1145/3523227.3551478.
- [32] Fernando Benjamín Pérez Maurera, Maurizio Ferrari Dacrema, and Paolo Cremonesi. 2022. Towards the evaluation of recommender systems with impressions. In *RecSys '22: Sixteenth ACM Conference on Recommender Systems, Seattle, WA, USA, September 18 - 23, 2022*. Jennifer Golbeck, F. Maxwell Harper, Vanessa Murdock, Michael D. Ekstrand, Bracha Shapira, Justin Basilico, Keld T. Lundgaard, and Even Oldridge, editors. ACM, 610–615. doi: 10.1145/3523227.3551483.
- [33] Pietro Chiavassa, Andrea Marchesin, Ignazio Pedone, Maurizio Ferrari Dacrema, and Paolo Cremonesi. 2022. Virtual network function embedding with quantum annealing. In *IEEE International Conference on Quantum Computing and Engineering, QCE 2022, Broomfield, CO, USA, September 18-23, 2022*. IEEE, 282–291. doi: 10.1109/QCE53715.2022.00048.
- [34] Gloria Turati, Maurizio Ferrari Dacrema, and Paolo Cremonesi. 2022. Feature selection for classification with QAOA. In *IEEE International Conference on Quantum Computing and Engineering, QCE 2022, Broomfield, CO, USA, September 18-23, 2022*. IEEE, 782–785. doi: 10.1109/QCE53715.2022.00117. arXiv: 2211.02861.
- [35] Maurizio Ferrari Dacrema, Fabio Moroni, Riccardo Nembrini, Nicola Ferro, Guglielmo Faggioli, and Paolo Cremonesi. 2022. Towards feature selection for ranking and classification exploiting quantum annealers. In *SIGIR '22: The 45th International ACM SIGIR Conference on Research and Development in Information Retrieval, Madrid, Spain, July 11 - 15, 2022*. Enrique Amigó, Pablo Castells, Julio Gonzalo, Ben Carterette, J. Shane Culpepper, and Gabriella Kazai, editors. ACM, 2814–2824. doi: 10.1145/3477495.3531755. arXiv: 2205.04346.
- [36] Fernando Benjamín Pérez Maurera, Maurizio Ferrari Dacrema, and Paolo Cremonesi. 2022. An evaluation study of generative adversarial networks for collaborative filtering. In *Advances in Information Retrieval - 44th European Conference on IR Research, ECIR 2022, Stavanger, Norway, April 10-14, 2022, Proceedings, Part I* (Lecture Notes in Computer Science). Matthias Hagen, Suzan Verberne, Craig Macdonald, Christin Seifert, Krisztian Balog, Kjetil Nørkvåg, and Vinay Setty, editors. Volume 13185. Springer, 671–685. doi: 10.1007/978-3-030-99736-6_45. arXiv: 2201.01815.

- [37] Maurizio Ferrari Dacrema. 2021. Demonstrating the equivalence of list based and aggregate metrics to measure the diversity of recommendations (student abstract). In *Thirty-Fifth AAAI Conference on Artificial Intelligence, AAAI 2021, Thirty-Third Conference on Innovative Applications of Artificial Intelligence, IAAI 2021, The Eleventh Symposium on Educational Advances in Artificial Intelligence, EAAI 2021, Virtual Event, February 2-9, 2021*. AAAI Press, 15779–15780. <https://ojs.aaai.org/index.php/AAAI/article/view/17886>.
- [38] Maurizio Ferrari Dacrema, Nicolò Felicioni, and Paolo Cremonesi. 2021. Optimizing the selection of recommendation carousels with quantum computing. In *RecSys '21: Fifteenth ACM Conference on Recommender Systems, Amsterdam, The Netherlands, 27 September 2021 - 1 October 2021*. Humberto Jesús Corona Pampín, Martha A. Larson, Martijn C. Willemsen, Joseph A. Konstan, Julian J. McAuley, Jean Garcia-Gathright, Bouke Huurnink, and Even Oldridge, editors. ACM, 691–696. doi: 10.1145/3460231.3478853.
- [39] Nicolò Felicioni, Maurizio Ferrari Dacrema, and Paolo Cremonesi. 2021. A methodology for the offline evaluation of recommender systems in a user interface with multiple carousels. In *Adjunct Publication of the 29th ACM Conference on User Modeling, Adaptation and Personalization, UMAP 2021, Utrecht, The Netherlands, June 21-25, 2021*. Judith Masthoff, Eelco Herder, Nava Tintarev, and Marko Tkalcic, editors. ACM, 10–15. doi: 10.1145/3450614.3461680. arXiv: 2105.06275.
- [40] Nicolò Felicioni, Maurizio Ferrari Dacrema, and Paolo Cremonesi. 2021. Measuring the user satisfaction in a recommendation interface with multiple carousels. In *IMX '21: ACM International Conference on Interactive Media Experiences, Virtual Event, USA, June 21-23, 2021*. ACM, 212–217. doi: 10.1145/3452918.3465493. arXiv: 2105.07062.
- [41] Maurizio Ferrari Dacrema, Federico Parroni, Paolo Cremonesi, and Dietmar Jannach. 2020. Critically examining the claimed value of convolutions over user-item embedding maps for recommender systems. In *CIKM '20: The 29th ACM International Conference on Information and Knowledge Management, Virtual Event, Ireland, October 19-23, 2020*. Mathieu d'Aquin, Stefan Dietze, Claudia Hauff, Edward Curry, and Philippe Cudré-Mauroux, editors. ACM, 355–363. doi: 10.1145/3340531.3411901. arXiv: 2007.11893.
- [42] Fernando Benjamín Pérez Maurera, Maurizio Ferrari Dacrema, Lorenzo Saule, Mario Scriminaci, and Paolo Cremonesi. 2020. Contentwise impressions: an industrial dataset with impressions included. In *CIKM '20: The 29th ACM International Conference on Information and Knowledge Management, Virtual Event, Ireland, October 19-23, 2020*. Mathieu d'Aquin, Stefan Dietze, Claudia Hauff, Edward Curry, and Philippe Cudré-Mauroux, editors. ACM, 3093–3100. doi: 10.1145/3340531.3412774. arXiv: 2008.01212.
- [43] Maurizio Ferrari Dacrema, Paolo Cremonesi, and Dietmar Jannach. 2019. Are we really making much progress? A worrying analysis of recent neural recommendation approaches. In *Proceedings of the 13th ACM Conference on Recommender Systems, RecSys 2019, Copenhagen, Denmark, September 16-20, 2019*. Toine Bogers, Alan Said, Peter Brusilovsky, and Domonkos Tikk, editors. **(Best ACM Long Paper Award)**. ACM, 101–109. doi: 10.1145/3298689.3347058. arXiv: 1907.06902.
- [44] Cesare Bernardis, Maurizio Ferrari Dacrema, and Paolo Cremonesi. 2019. Estimating confidence of individual user predictions in item-based recommender systems. In *Proceedings of the 27th ACM Conference on User Modeling, Adaptation and Personalization, UMAP 2019, Larnaca, Cyprus, June 9-12, 2019*. George Angelos Papadopoulos, George Samaras, Stephan Weibelzahl, Dietmar Jannach, and Olga C. Santos, editors. ACM, 149–156. doi: 10.1145/3320435.3320453.
- [45] Francesco Amigoni, Maurizio Ferrari Dacrema, Alessandro Donati, Christian Laroque, Michèle Lavagna, and Alessandro Riva. 2018. Aggregating models for anomaly detection in space systems: results from the FCTMAS study. In *Intelligent Autonomous Systems 15 - Proceedings of the 15th International Conference IAS-15, Baden-Baden, Germany, June 11-15, 2018* (Advances in Intelligent Systems and Computing). Marcus Strand, Rüdiger Dillmann, Emanuele Menegatti, and Stefano Ghidoni, editors. Volume 867. Springer, 142–160. doi: 10.1007/978-3-030-01370-7_12.
- [46] Cesare Bernardis, Maurizio Ferrari Dacrema, and Paolo Cremonesi. 2018. A novel graph-based model for hybrid recommendations in cold-start scenarios. *Late-breaking results at RecSys '18: Twelfth ACM Conference on Recommender Systems*, abs/1808.10664, 2 pages. arXiv: 1808.10664.
- [47] Maurizio Ferrari Dacrema and Paolo Cremonesi. 2018. Eigenvalue analogy for confidence estimation in item-based recommender systems. *Late-breaking results at RecSys '18: Twelfth ACM Conference on Recommender Systems*, abs/1809.02052, 2 pages. arXiv: 1809.02052.

Workshop Paper

- [48] Simone Colecchia, Mauro Orazio Drago, Jihad Founoun, Paolo Gennaro, Ernesto Natuzzi, Luca Pagano, Sajjad Shaffaf, Giuseppe Vitello, Andrea Pisani, and Maurizio Ferrari Dacrema. 2025. From sequences to profiles: generating universal behavioral profiles exploiting recurrent neural networks. In *Proceedings of the Recommender Systems Challenge 2025 (RecSysChallenge '25)*. Association for Computing Machinery, 31–35. ISBN: 9798400720994. doi: 10.1145/3758126.3758133.
- [49] Filippo Brozzi, Gloria Turati, and Maurizio Ferrari Dacrema. 2024. Exploring the role of hamiltonian expressibility in ansatz selection for variational quantum algorithms. In *Proceedings of the International Workshop on AI for Quantum and Quantum for AI (AIQxQIA 2024) co-located with 23rd International Conference of the Italian Association for Artificial Intelligence (AlxIA 2024), November 25 - November 28, 2024, Free University of Bolzano, Bolzano, Italy* (CEUR Workshop Proceedings). Marco Baioletti, Miguel Ángel González, Angelo Oddi, Riccardo Rasconi, and Ramiro Varela, editors. Volume 3913. CEUR-WS.org, 2 pages.
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- [70] Nicolò Felicioni, Maurizio Ferrari Dacrema, Fernando Benjamín Pérez Maurera, and Paolo Cremonesi. 2021. Measuring the ranking quality of recommendations in a two-dimensional carousel setting. In *Proceedings of the 11th Italian Information Retrieval Workshop 2021, Bari, Italy, September 13-15, 2021* (CEUR Workshop Proceedings). Vito Walter Anelli, Tommaso Di Noia, Nicola Ferro, and Fedelucio Narducci, editors. Volume 2947. CEUR-WS.org. <https://ceur-ws.org/Vol-2947/paper4.pdf>.
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- [75] Sebastiano Antenucci, Simone Boglio, Emanuele Chioso, Ervin Dervishaj, Shuwen Kang, Tommaso Scarlatti, and Maurizio Ferrari Dacrema. 2018. Artist-driven layering and user's behaviour impact on recommendations in a playlist continuation scenario. In *Proceedings of the ACM Recommender Systems Challenge, RecSys Challenge 2018, Vancouver, BC, Canada, October 2, 2018*. ACM, 4:1–4:6. doi: 10.1145/3267471.3267475. arXiv: 2010.06233.
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Industrial Conference Poster

- [77] Riccardo Pellini, Maurizio Ferrari Dacrema, and Paolo Cremonesi. 2023. Assessing how the structure of the QUBO problem affects the effectiveness of quantum annealing. *3rd European Quantum Technologies Conference (EQTC), Hannover, Germany, October 16–18, 2023*, 1 page poster.
- [78] Gloria Turati, Maurizio Ferrari Dacrema, and Paolo Cremonesi. 2023. A benchmark study of adaptative-VQAs on QUBO instances. *3rd European Quantum Technologies Conference (EQTC), Hannover, Germany, October 16–18, 2023*, 1 page poster.
- [79] Riccardo Nembrini, Maurizio Ferrari Dacrema, and Paolo Cremonesi. 2023. Quantum annealing-assisted bipartite community detection for recommender systems. *3rd European Quantum Technologies Conference (EQTC), Hannover, Germany, October 16–18, 2023*, 1 page poster.
- [80] Maurizio Ferrari Dacrema, Nicolò Felicioni, and Paolo Cremonesi. 2021. Personalizing video recommendation layout with quantum annealing. *2nd European Quantum Technologies Virtual Conference (EQTC), 29 November, 2021*, 1 page poster.
- [81] Maurizio Ferrari Dacrema, Tang-Tang Zhou, Riccardo Nembrini, and Paolo Cremonesi. 2021. Quantum annealing linear regression for collaborative filtering recommendations. *2nd European Quantum Technologies Virtual Conference (EQTC), 29 November, 2021*, 1 page poster.
- [82] Costantino Carugno, Maurizio Ferrari Dacrema, and Paolo Cremonesi. 2021. Reverse annealing improves solutions of job shop scheduling problems on a quantum annealer. *2nd European Quantum Technologies Virtual Conference (EQTC), 29 November, 2021*, 1 page poster.
- [83] Riccardo Nembrini, Maurizio Ferrari Dacrema, Dario Cardamone, and Paolo Cremonesi. 2021. Quantum personalization: an application of quantum annealing recommender systems. *2nd European Quantum Technologies Virtual Conference (EQTC), 29 November, 2021*, 1 page poster.

Preprint

- [84] Fabio Picariello, Gloria Turati, Riccardo Antonelli, Igor Bailo, Susanna Bonura, Gianmarco Ciarfaglia, Salvatore Cipolla, Paolo Cremonesi, Maurizio Ferrari Dacrema, Michele Gabusi, Ivan Gentile, Vito Morreale, and Antonio Noto. 2025. Quantum approaches to urban logistics: from core QAOA to clustered scalability. arXiv: 2512.10813.
- [85] Filippo Brozzi, Gloria Turati, Maurizio Ferrari Dacrema, Filippo Caruso, and Paolo Cremonesi. 2025. Hamiltonian expressibility for ansatz selection in variational quantum algorithms. arXiv: 2507.22550.
- [86] Gloria Turati, Simone Foderà, Riccardo Nembrini, Maurizio Ferrari Dacrema, and Paolo Cremonesi. 2025. Automated design of structured variational quantum circuits with reinforcement learning. arXiv: 2507.16001.
- [87] Gloria Turati, Alessia Marruzzo, Maurizio Ferrari Dacrema, and Paolo Cremonesi. 2024. An empirical analysis on the effectiveness of the variational quantum linear solver. arXiv: 2409.06339.
- [88] Nicolò Felicioni, Michael Benigni, and Maurizio Ferrari Dacrema. 2024. Automated off-policy estimator selection via supervised learning. arXiv: 2406.18022.

Teaching Experience

COURSES WITH PRIMARY RESPONSIBILITY

Recommender Systems (Master Level): Lecturer in A.Y. 2024-25 and 2025-26

Computer Science and Elements of Medical Informatics (Bachelor Level): Lecturer in A.Y. 2022-23

Applied Quantum Machine Learning (PhD Level): Co-Lecturer in A.Y. 2020-21

TEACHING ASSISTANT AND TUTOR

Quantum Computing (Master Level): Teaching Assistant in A.Y. 2023-24

Recommender Systems (Master Level): Teaching Assistant in A.Y. 2017-18, 2018-19, 2019-20, 2020-21, 2021-22, 2022-23 and 2023-24

Fundamentals of Computer Science (Bachelor Level): Teaching Assistant in A.Y. 2020-21, 2021-22, 2022-23, 2023-24 and 2024-25; Tutor in A.Y. 2016-17, 2019-20 and 2020-21; Lab Assistant in A.Y. 2017-18

Computer Science A (Bachelor Level): Tutor in A.Y. 2019-20, 2020-21, 2021-22 and 2022-23

Software Engineering (Bachelor Level): Tutor in A.Y. 2014-15, 2015-16 and 2016-17

Computer Systems (Master Level): Teaching Assistant in 2016-17

Computer Science B (Bachelor Level): Tutor in 2015-16

Tutoring students with disabilities (Bachelor Level): Tutor in 2014-15

Talks and Seminars

- 2025 **Invited Speaker**, Italian Quantum Information Science Conference (IQIS), “Machine Learning Approaches for Quantum Computing at Polimi: Ansatz Design, Minor Embedding, and Bosonic State Preparation”
Tutorial Presenter, International ACM Conference on Recommender Systems (RecSys), “A Hands-on Dive Into Quantum Computing for Recommender Systems” [17]
- 2024 **Tutorial Presenter**, International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR), “Using and Evaluating Quantum Computing for Information Retrieval and Recommender Systems” [23]
Tutorial Presenter, European Conference on Information Retrieval (ECIR), “Quantum Computing for Information Retrieval and Recommender Systems” [25]
Summer School Lecturer, ACM Conference on Recommender Systems (RecSys), “Offline Recommender Systems Evaluation: Towards a Holistic Understanding of Recommendation Performance”
Keynote Speaker, QuantumCLEF Lab at the Conference and Labs of the Evaluation Forum (CLEF), “Basic Notions of Quantum Computing, Gate Model and Quantum Annealing”
Invited Seminar, Politecnico di Milano, School of Management, Observatory on Quantum Computing & Communication, “Basic Notions of Quantum Computing”
Invited Seminar, Politecnico di Milano, Department of Mathematics, “The Magic of Quantum Computers”
Invited Mentor, Doctoral Symposium at the ACM Conference on Recommender Systems (RecSys)

- 2021 **Invited Seminar**, Politecnico di Bari, “Quantum Computing for Machine Learning”
Invited Seminar, Politecnico di Milano, presenting my PhD thesis, winner of the “Prof. Florian Daniel” Award for best doctoral thesis in Computer Science Engineering
Invited Paper Presentation, International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR), “A Troubling Analysis of Reproducibility and Progress in Recommender Systems Research” [9]
Invited Seminar, Farfetch, “Are We Really Making Much Progress? A Worrying Analysis of Recent Neural Recommendation Approaches” [43]
Invited Podcast, Data Exchange, “The state of research in recommendation systems”
Talk, Qubits, D-Wave, “Feature Selection for Recommender Systems with Quantum Computing” [10]
- 2020 **Invited Paper Presentation**, International Joint Conferences on Artificial Intelligence (IJCAI), “Methodological Issues in Recommender Systems Research (Extended Abstract)” [12]
Invited Talk, Aggregate Intellect, “Are We Really Making Much Progress? A Worrying Analysis of Recent Neural Recommendation Approaches” [43]

Service

- 2026 **Conference Program Co-Chair**, *Tutorials* track at the 20th ACM Conference on Recommender Systems (RecSys)
Evaluation Lab Organizer, “QuantumCLEF - Quantum Computing at CLEF” at the Conference and Labs of the Evaluation Forum (CLEF) [15]
- 2025 **Conference Program Co-Chair**, *Reproducibility* track at the 19th ACM Conference on Recommender Systems (RecSys)
Evaluation Lab Organizer, “QuantumCLEF - Quantum Computing at CLEF” at the Conference and Labs of the Evaluation Forum (CLEF) [18, 20]
Senior Program Committee Member, *Reproducibility* track at the 48th European Conference on Information Retrieval (ECIR)
Reviewer for Journals, Philosophical Transactions of the Royal Society A (RSTA), IEEE Transactions on Quantum Engineering (IEEE TQE), ACM Transactions on Quantum Computing (TQC), ACM Transactions on Information Systems (TOIS), ACM Transactions on Recommender Systems (TORS)
- 2024 **Conference Program Co-Chair**, *Demos and Late-Breaking Results* track at the 18th ACM Conference on Recommender Systems (RecSys)
Evaluation Lab Organizer, “QuantumCLEF - Quantum Computing at CLEF” at the Conference and Labs of the Evaluation Forum (CLEF) [21, 28, 55]
Senior Program Committee Member, *Reproducibility* track at the 47th European Conference on Information Retrieval (ECIR)
Reviewer for Journals, Quantum Information Processing (QIP, Springer), ACM Transactions on Information Systems (TOIS), ACM Transactions on Recommender Systems (TORS), Foundations and Trends in Information Retrieval (FnTIR), IEEE Transactions on Knowledge and Data Engineering (TKDE)
- 2023 **Workshop Organizer**, Workshop on “Learning and Evaluating Recommendations with Impressions” at the 17th ACM Conference on Recommender Systems (RecSys)
Reviewer for Journals, ACM Transactions on Information Systems (TOIS), ACM Transactions on Recommender Systems (TORS)

- 2022-present **Member of the Scientific Board**, Observatory for Quantum Technologies, School of Management, Politecnico di Milano
- 2022 **Session Chair**, Fourth Knowledge-aware and Conversational Recommender Systems Workshop located at the 16th ACM Conference on Recommender Systems (RecSys)
- Session Chair and Local Organization Committee**, Italian Information Retrieval Workshop
- 2021 **Reviewer for Journals**, Computers & Security (Elsevier), Information Processing and Management (Elsevier), ACM Transactions on Information Systems, IEEE Transactions on Multimedia, IEEE Transactions on Service Computing
- 2020 **Reviewer for Journals**, IEEE Transactions on Emerging Topics in Computing, Future Generation Computer Systems, Neurocomputing (Elsevier)
- 2018-present **Program Committee Member**, RecSys, SIGIR, KDD, AAAI, CIKM, WWW, WSDM, UMAP, LREC, ICWE

SUPERVISOR OF DOCTORAL STUDENTS AND MASTER STUDENTS

- 2025-present **Michael Benigni**, Supervisor, Ph.D. program in Information Technology, Politecnico di Milano
- 2023-present **Riccardo Pellini**, Supervisor, Ph.D. program in Information Technology, Politecnico di Milano
- 2023-present **Andrea Pisani**, Co-Supervisor, Italian National Ph.D. program in Artificial Intelligence for Industry 4.0, Politecnico di Milano
- 2021-2025 **Gloria Turati**, Advisor, Ph.D. program in Information Technology, Politecnico di Milano
- 2021-present **Nicolò Felicioni**, Advisor, Ph.D. program in Information Technology, Politecnico di Milano
- 2020-2025 **Riccardo Nembrini**, Advisor, Ph.D. program in Information Technology, Politecnico di Milano
- 2020-2025 **Costantino Carugno**, Advisor, Ph.D. program in Information Technology, Politecnico di Milano
- 2019-2024 **Fernando Benjamín Pérez Maurera**, Advisor, Ph.D. program in Information Technology, Politecnico di Milano
- 2016-present **Supervisor of 19 master students and Advisor of 17 master students**, Master Degree in *Computer Science and Engineering*, and *High Performance Computing Engineering*, Politecnico di Milano

MEMBER OF UNIVERSITY BODIES AND COMMITTEES

- 2020-2022 **Department Council**, Representative of the Research Assistants, Department of Electronics, Information and Bioengineering, Politecnico di Milano
- 2014-2015 **Academic Senate**, Politecnico di Milano
- 2012-2013 **University Assessment Commission (Nucleo di Valutazione)**, Politecnico di Milano
- 2011-2014 **School of Industrial and Information Engineering**, Member of the School Board (Giunta di Scuola), the Joint Professors-Students Board (Commissione Paritetica Docenti-Studenti), and the Learning Program Council (Consiglio di Corso di Studi) for Engineering of Computing Systems

Quality Assurance of Higher Education Institutions

NATIONAL ACCREDITATIONS

- 2022 **Italian National Agency for the Evaluation of Universities and Research Institutes (ANVUR)**, Member of one of the three commissions charged to test the new proposed national accreditation framework AVA3 with an on-site visit at Università degli Studi di Torino.
- 2020-2024 **ANVUR**, Member of the commission responsible for the initial accreditation of the proposals to establish new private Italian universities. The commission evaluated 10 proposals.
- 2019-2023 **ANVUR**, Register of experts in evaluation, Coordinator Profile
- 2016-2022 **Italian Agency for the Quality Certification and EUR-ACE Accreditation of Engineering Programs (QUACING)**, Evaluator Student Profile, on-site visits: Università di Roma “La Sapienza”, Università di Padova, Politecnico di Torino, Università Carlo Cattaneo, Università di Salerno. Some universities received multiple visits.
- 2014-2021 **ANVUR**, Register of experts in evaluation, Student Profile. Accreditation on-site visits: Università Niccolò Cusano, Università di Modena e Reggio Emilia, Università degli studi di Torino, Politecnico di Torino, Università Commerciale Luigi Bocconi, Università IUAV di Venezia, Università del Piemonte Orientale, Università degli Studi di Palermo, Università di Cagliari, Università Telematica Pegaso, Università degli Studi di Trento, Università Ca’ Foscari, Università di Bari, Università di Pisa, Università di Parma, Politecnico di Bari, Università di Scienze Gastronomiche, Università per Stranieri di Perugia.

INTERNATIONAL EVALUATIONS

- 2024 **Kosovo Accreditation Agency (KAA)**, Evaluator for the Institutional Accreditation of the Business and Technology (UBT) College and the Arena e Arsimit Bashkëkohor (AAB) College, Kosovo.
- 2022 **Italian Agency for the Quality Certification and EUR-ACE Accreditation of Engineering Programs (QUACING)**, Evaluator for the Institutional Accreditation of the TEK-UP University, Tunisia.
- 2021 **Turkish Higher Education Quality Council (THEQC)**, International evaluator for the Institutional Accreditation of the Ahi Evran University, Türkiye.
- 2020 **Accreditation Organisation of the Netherlands and Flanders (NVAO)**, EUniQ Project for the Development of a European framework for comprehensive quality assurance of European universities (Erasmus+). Member of the regular panel for the University Network for Innovation Technology and Engineering (UNITE).
- Accreditation Organisation of the Netherlands and Flanders (NVAO)**, Member of the Core Faculty Panel of the University of Luxemburg.
- 2018 **Agència per a la Qualitat del Sistema Universitari de Catalunya (AQU)**, TeSLA Project, Adaptive trust e-assessment system (Horizon 2020). Member of the regular panel for Pilot 3 at the Technical University of Sofia, Bulgaria.
- 2018-today **International Expert on Quality Assurance in Higher Education Institutions**, Quality Agency for Higher Education (Latvia); Turkish Higher Education Quality Council (Türkiye); Agency for Higher Education of Republic of Srpska (Bosnia and Herzegovina); Accreditation Board of Quality Assurance Agency in Higher Education (Albania); Kosovo Accreditation Agency (Kosovo); National Center for Education Quality Enhancement (Georgia).

LECTURER IN COURSES

- 2018 **The Italian model for the accreditation of universities**, University of Verona, Italy
- 2016 **The Italian model for the accreditation of universities**, Politecnico di Milano, Italy
- The role of evaluation experts student profile**, ANVUR - Italian National Agency For The Evaluation Of Universities And Research Institutes