Giorgio Franceschelli

CONTACTS

Viale del Risorgimento, 2
40136, Bologna, Italy

E-mail: giorgio.franceschelli@unibo.it
Website: giorgiofranceschelli.github.io

CITIZENSHIP

Italy

CURRENT
PLACEMENT

University of Bologna, Department of Computer Science and Engineering

- Research fellow
  Assegnista di ricerca

RESEARCH
THEMES

My main research area focuses on Artificial Intelligence, and, in particular, computational creativity, deep learning, reinforcement learning, and their interplays. I'm interested in anything related to them, from generative modeling and intellectual property to art history, neuroscience, and ethics.

EDUCATION

Dipartimento di Informatica - Scienza e Ingegneria (DISI), University of Bologna, Bologna, Italy

Ph.D. in Computer Science and Engineering, April 2025

- Thesis Title: *Deep Reinforcement Learning and Creativity*
- Supervisor: Prof. Mirco Musolesi
- Co-Supervisor: Prof. Paolo Torroni
- External reviewer: Prof. Alessandro Bogliolo
- External reviewer: Prof. Delmiro Fernandez-Reyes
- Area of study: Artificial Intelligence

M.S., Computer Engineering, February 2021

- Grade: 110L/100 - Magna cum Laude
- Thesis Topic: *Generative Deep Learning and Creativity*
- Supervisor: Prof. Mirco Musolesi
- Area of study: Autonomous Adaptive Systems
- Awards: *AIxIA - "Leonardo Lesmo" 2021* award for the best Master's thesis

B.S., Computer Engineering, October 2018

- Grade: 110L/100 - Magna cum Laude
- Thesis Topic: *Copyright of Artificial Intelligence-Generated Artworks.*
- Supervisor: Prof. Claudia Cevenini
- Area of study: Computer Law

RESEARCH CONTRACTS

Research contract @ University of Bologna   2025-01-08 — 2026-01-07
Italian *Assegno di ricerca*, 12 months. The previous research contract has been extended for a further year.

Research contract @ University of Bologna   2024-01-08 — 2025-01-07
Italian *Assegno di ricerca*, 12 months. Research contract topic: "AI applications to monitoring and automated testing of new-generation networks".

SCIENTIFIC PUBLICATIONS

BIBLIOMETRICS   **Google Scholar metrics** as of 2025-12-01

Overall
- Citations: 507
- h-Index: 6
- i10-Index: 6

Since 2020
- Citations: 504
- h-Index: 6
- i10-Index: 6

JOURNAL PUBLICATIONS

G. Franceschelli and M. Musolesi, "Diffsampling: Enhancing diversity and accuracy in neural text generation," *Transactions on Machine Learning Research*, 2025.

G. Franceschelli and M. Musolesi, "On the creativity of large language models," *AI & SOCIETY*, vol. 40, no. 5, pp. 3785–3795, 2025. DOI: `10.1007/s00146-024-02127-3`.

G. Franceschelli and M. Musolesi, "Creativity and machine learning: A survey," *ACM Computing Surveys*, vol. 56, no. 11, 283:1–41, 2024. DOI: `10.1145/3664595`.

G. Franceschelli and M. Musolesi, "Reinforcement learning for generative AI: State of the art, opportunities and open research challenges," *Journal of Artificial Intelligence Research*, vol. 79, pp. 417–446, 2024. DOI: `10.1613/jair.1.15278`.

G. Franceschelli and M. Musolesi, "Copyright in generative deep learning," *Data & Policy*, vol. 4, e17, 2022. DOI: `10.1017/dap.2022.10`.

G. Franceschelli and M. Musolesi, "DeepCreativity: Measuring creativity with deep learning techniques," *Intelligenza Artificiale*, vol. 16, no. 2, pp. 151–163, 2022. DOI: `10.3233/IA-220136`.

CONTRIBUTIONS IN CONFERENCE PROCEEDINGS

G. Franceschelli and M. Musolesi, "Creative beam search: LLM-as-a-Judge for improving response generation," in *Proc. of the 15th International Conference on Computational Creativity (ICCC'24)*, Jonkoping, Sweden, 2024.

PRE-PRINTS

F. Calcagno, L. Serfilippi, G. Franceschelli, M. Garavelli, M. Musolesi, and I. Rivalta, "Quantum chemistry driven molecular inverse design with data-free reinforcement learning," arXiv:2503.12653 [physics.chem-ph], 2025.

G. Franceschelli and M. Musolesi, "Thinking outside the (gray) box: A context-based score for assessing value and originality in neural text generation," arXiv:2502.13207 [cs.CL], 2025.

L. Serfilippi, G. Franceschelli, A. Corradi, and M. Musolesi, "Complexity-driven policy optimization," arXiv:2509.20509 [cs.LG], 2025.

G. Franceschelli, C. Cevenini, and M. Musolesi, "Training foundation models as data compression: On information, model weights and copyright law," arXiv:2407.13493 [cs.CY], 2024.

G. Franceschelli and M. Musolesi, "Do agents dream of electric sheep?: Improving generalization in reinforcement learning through generative learning," arXiv:2403.07979 [cs.LG], 2024.

Other
Publications

G. Franceschelli and M. Musolesi, "7. Creativity," in *OECD AI Capability Indicators Technical Report*, OECD Publishing, 2025, pp. 86–99. DOI: 10.1787/9cdb3dd1-en.

G. Franceschelli, *I, Artist. Opere d'arte e intelligenza artificiale. Il curioso caso del diritto d'autore*. Ventura Edizioni, 2019, ISBN: 8899342652.

G. Franceschelli, "L'importanza del suono nel progresso culturale," in *Prospettive sonore. Percezione e mediazione*, Galaad Edizioni, 2016, pp. 257–274, ISBN: 8898722338.

SCIENTIFIC ACTIVITIES

PARTICIPATION IN RESEARCH GROUPS	**Machine Intelligence Lab** **September 2020 — today** The primary research group I have worked with since the beginning of my Master's thesis. The group is led by Professor Mirco Musolesi and operates at the University College London and the University of Bologna.

PARTICIPATION IN INTERNATIONAL RESEARCH ACTIVITIES

OECD AI Capability Indicators   **2024 — 2025**

- Role: Expert for the creativity scale.
- Project organizer: OECD's Artificial Intelligence and Future of Skills.
- Publications:
  - OECD (2025), *Introducing the OECD AI Capability Indicators*, OECD Publishing, Paris, doi:10.1787/be745f04-en.
  - OECD (2025), *OECD AI Capability Indicators Technical Report*, OECD Publishing, Paris, doi:10.1787/9cdb3dd1-en.

ORGANIZATION OF INTERNATIONAL CONFERENCES

28th European Conference on Artificial Intelligence (ECAI 2025)
Program and App Manager.

PARTICIPATION IN PROGRAM COMMITTEES OF INTERNATIONAL CONFERENCES

40th Annual AAAI Conference on Artificial Intelligence (AAAI 2026)
Program Committee member.

1st International Workshop on Human-AI Collaborative Systems (HAIC 2025) @ ECAI-2025
Program Committee member.

REVIEWING FOR INTERNATIONAL JOURNALS

Computers in Human Behavior Reports (ISSN: 2451-9588), 2025.

Philosophy & Technology (ISSN: 2210-5441), 2025.

Nature Communications (ISSN: 2041-1723), 2025.

Patterns (ISSN: 2666-3899), 2025.

Humanities and Social Sciences Communications (ISSN: 2662-9992), 2025.

IEEE Internet of Things Journal (ISSN: 2327-4662), 2024.

ACM Computing Surveys (ISSN: 0360-0300), 2024.

Journal of Cultural Cognitive Science (ISSN: 2520-1018), 2024.

Journal of Machine Learning Research (ISSN: 1533-7928), 2023.

INVITED TALKS

Creativity and the generative AI era   **2025**
Seminar for the *Autonomous and Adaptive Systems* course, second cycle degree programme in Artificial Intelligence at the University of Bologna.

Intelligenza Artificiale generativa e le nuove sfide del Diritto d'Autore 2025
Micro-webinar for the *Computer Law* course, first cycle degree programme in Computer Engineering at the University of Bologna.

Creativity and machines   **2024**
Seminar for the *Autonomous and Adaptive Systems* course, second cycle degree pro-
gramme in Artificial Intelligence at the University of Bologna.

Artificial creativity   **2023**
Talk at the *MilaNLP Lab*, Bocconi University.

AI's Adventures in Wonderland   **2023**
Seminar for the *Autonomous and Adaptive Systems* course, second cycle degree pro-
gramme in Artificial Intelligence at the University of Bologna.

**Opere d'arte e intelligenza artificiale. Il curioso caso del diritto d'autore
2022**
Talk at the Accademia di Belle Arti di Verona.

Copyright in Generative Machine Learning   **2022**
Talk at the MIT Media Lab.

Machine Creativity and the Law   **2022**
Talk at Adobe.

Diritto d'autore e pubblico dominio in GitHub   **2021**
Webinar for the *Computer Law* course, first cycle degree programme in Computer En-
gineering at the University of Bologna.

GitHub: copyright e licenze   **2020**
Webinar for the *Information Technology and Law* course, first cycle degree programme
in Computer Science and Engineering at the University of Bologna.

Opere create da Intelligenza Artificiale. Le nuove sfide del diritto   **2020**
Webinar for the *Information Technology and Law* course, first cycle degree programme
in Computer Science and Engineering at the University of Bologna.

<table>
<tr><td>INVITED
PARTICIPATION TO
PANELS</td><td>**Back to fundamentals of research: Interdisciplinarity** **2024**
At Istituto di Studi Avanzati (ISA), University of Bologna.</td></tr>
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INVITED
PARTICIPATION TO
PANELS

Back to fundamentals of research: Interdisciplinarity   **2024**
At Istituto di Studi Avanzati (ISA), University of Bologna.

**New Technologies, Creativity and Ethical Issues: Copyright Challenges in
the Age of AI**   **2024**
At Bologna Children's Book Fair.

Intelligenza Artificiale e Diritto d'Autore: una sfida interdisciplinare **2020**
At UniUrb Spritz, Università degli Studi di Urbino.

AWARDS

ISA Doctoral Prize   **2023**
Financial contribution aimed at interdisciplinary research activities of PhD students at
the University of Bologna.

AIxIA Best Master's Thesis Award   **2021**
AIxIA - "Leonardo Lesmo" award for the best Master's thesis on AI in Italy.

INTERNATIONAL
EXPERIENCES

University College London, London, United Kingdom
Visiting PhD Student   **September, 2023 to December, 2023**

- Research on two key concepts in human creativity for generative AI: (self-)evaluation
  and agency.
- Supervisor: Prof. Mirco Musolesi.

TEACHING

TUTORING

2024/25 **Autonomous and Adaptive Systems**, second cycle degree programme in Artificial Intelligence at the University of Bologna.

2024/25 **Computer Law (Diritto dell'Informatica)**, first cycle degree programme in Computer Engineering at the University of Bologna.

2023/24 **Autonomous and Adaptive Systems**, second cycle degree programme in Artificial Intelligence at the University of Bologna.

2023/24 **Computer Law (Diritto dell'Informatica)**, first cycle degree programme in Computer Engineering at the University of Bologna.

2020/21 **Information Technology and Law (Informatica e Diritto)**, first cycle degree programme in Computer Science and Engineering at the University of Bologna.

2019/20 **Information Technology and Law (Informatica e Diritto)**, first cycle degree programme in Computer Science and Engineering at the University of Bologna.

CO-SUPERVISION OF MASTER'S STUDENTS

- Gian Mario Marongiu: *Personality Alignment in Large Language Models: Analysis and Fine-Tuning through Preference Optimization*, 2025.

- Giovanni Gheriglio: *Investigating Contextual Memorization in Large Language Models through Prompting Techniques*, 2025.

- Edoardo Merli: *Large Language Model Understanding of Graph Structures via Graph Embeddings*, 2025.

- Samuele Bortolato: *Exploring Large Language Models as Reinforcement Learning Agents with Explicit Autonomous Reasoning*, 2024.

- Adelina Ramil Khafizova: *Some Experiments in Poetry Generation and Classification*, 2023.

- Luca Serfilippi: *Deep Reinforcement Learning for Inverse Molecular Design*, 2023.

- Giulio Vaccari: *Performance Analysis of the Design of Experience Replay Buffers based on Intrinsic Motivation in Deep Reinforcement Learning*, 2023.

CO-SUPERVISION OF BACHELOR'S STUDENTS

- Lorenzo Vannicola: *La proprietà intellettuale dei programmi per elaboratore generati da IA*, 2025.

- Alessandro Querze: *Diritto d'Autore e Intelligenza Artificiale generativa: analisi dei modelli per la tutela di testi e immagini*, 2025.

EXTRA-INSTITUTIONAL TEACHING

L'esplosione dell'Intelligenza Artificiale, Università di Urbino   2025

Massive Open Online Course (MOOC)
- *AIXMOOC 5.2 - IA generativa e creatività*: On the opportunities and the ethical and legal challenges of generative Artificial Intelligence and computational creativity.