



Riccardo Morandi

Nationality: Italian **Date of birth:** 23/08/1999 **Place of birth:** Mantova, Italy **Gender:** Male

Phone number: (+39) 3314113567 **Email address:** riccardomorandi99@hotmail.com

Website: morandiriccardo.com

Home: Via Corradini 25, 46010 Curtatone (Italy)

EDUCATION AND TRAINING

Master's Degree in Software Engineering: Artificial Intelligence

UNIMORE [01/09/2021 – 18/04/2024]

Address: Via Pietro Vivarelli 10, 41125 Modena (Italy) | **Field(s) of study:** Artificial Intelligence | **Final grade:** 110 cum Laude | **Thesis:** Operator Digital Twins in Industry 5.0: Design Strategies & Experimental Evaluation

Research into the potential implementation of an operator Digital Twin within an Industry 5.0 context, utilizing Movesense as the data collection device. Simulation of a Unity3D environment featuring a model that represented the state of the operator's Digital Twin.

Bachelor's Degree in Software Engineering

UNIMORE [01/09/2018 – 02/12/2021]

Address: Via Angelo Scarsellini 2, 46100 Mantova (Italy) | **Field(s) of study:** Ingegneria Informatica | **Final grade:** 100 | **Thesis:** Design and implementation of dynamic processing pipelines in serverless architectures.

Upper Secondary School Diploma

ITIS Fermi [01/09/2013 – 10/07/2018]

Address: Strada Spolverina 5, 46100 Mantova (Italy) | **Field(s) of study:** Electronics and Electrical Engineering: Automation | **Final grade:** 75

WORK EXPERIENCE

UNIMORE – Modena, Italy

Ph.D.

[01/11/2024 – Current]

PhD Program (Ministerial Decree 226/2021) in Information and Communication Technologies (ICT)
Research Area: Design and Implementation of Real-Time Digital Twins

W-Training – Emilia Romagna, Italy

Address: Via Gramsci 1/M, 42124 Emilia Romagna (Italy) | **Website:** <https://www.wtraining.it> | **Business or sector:** Education

Computer Science Teacher

[01/10/2025 – 20/12/2025]

Teaching activities for the following courses:

- Information Systems Innovation
- System Integrator

IFOA – Mantova, Italy

Website: <https://www.ifo.it/en/> | **Email address:** ifo@ifo.it | **Business or sector:** Education

Computer Science Teacher

[15/02/2024 – 01/06/2024]

Python programming instructor for training courses

UNIMORE – Reggio Emilia, Italy

Research Grant - A Sustainable and Orchestrated Digital Twin Ecosystem for Human-Centric Industry 5.0

[01/06/2024 – 31/10/2024]

Research and development on the WLDT Java library for Digital Twin development.

Research and development of Digital Twins for industrial machinery and operators within an Industry 5.0 context.

 **UNIMORE** – Mantova, Italy

University Internship – Digital Twin

[14/09/2023 – 14/01/2024]

Research and development of a potential implementation of an operator Digital Twin within an Industry 5.0 context. Experimental assessment of the feasibility and effectiveness of the implemented solution.

 **HIPERT** – Modena, Italy

Backend developer for vision system

[01/09/2023 – 16/12/2023]

Implementation of backend communication for a vision system developed by Hipert. Use of technologies such as ThingsBoard for the remote management and supervision of vision systems.

 **HIPERT** – Modena, Italy

University Scholarship

[16/06/2023 – 16/12/2023]

Enhancing knowledge in the field of high-performance embedded systems, gaining in-depth insight into the state of the art, and implementing key data-driven methodologies for autonomous driving.

 **HIPERT** – Modena, Italy

MASA IoT System Architectural Designer

[01/12/2022 – 01/09/2023]

Creation of the infrastructure for the MASA (Modena Automotive Smart Area) IoT project. Research into potential technologies for implementation.

 **UNIMORE** – Mantova, Italy

Laboratory activities as an architectural designer for the MASA IoT system

[01/12/2022 – 15/06/2023]

Creation of the infrastructure for the MASA (Modena Automotive Smart Area) IoT project. Research into potential technologies for implementation.

 **HIPERT** – Modena, Italy

Laboratory activities as HMI Designer and Developer for the CEMP project.

[01/10/2022 – 13/11/2022]

Development of an HMI system for the CEMP project, in collaboration with Dell'Orto S.p.A. and OCTO. The project was showcased at the EICMA 2022 global motorcycle trade show.

 **UNIMORE** – Mantova, Italy

University Internship – Serverless Computing

[01/04/2021 – 01/11/2021]

Research in the field of serverless computing. Use of Docker, Kubernetes, and OpenWhisk software.

SKILLS

Operative Systems

Good knowledge of operating systems (Linux, Windows, macOS)

Programming Languages

Programming Languages: Java, Python, C, C++

Other skills

Notions of Machine Learning and Deep Learning / Docker / REST API / SQL / IoT (BLE protocols, iTag, Beacon, System Integration)

LANGUAGE SKILLS

Mother tongue(s): Italiano

Other language(s):

Inglese

LISTENING B2 **READING** B2 **WRITING** B2

SPOKEN PRODUCTION B2 **SPOKEN INTERACTION** B2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

PUBLICATIONS

[2026]

Bridging Live Data & Simulation: Architectural Patterns for Digital Twins International Symposium on Distributed Simulation and Real Time Applications (DS-RT), Padua, Italy, 2026, Accepted

Authors: R. Morandi, M. Picone, N. Bicocchi, P. Talasila, P. G. Larsen

[2026]

Digital Twin Entanglement: Enhanced measurement & reference benchmarking Future Generation Computer Systems (FGCS), Special Issue: Digital Twins and Emerging Technologies for Industrial and Cyber-Physical Systems: From IoT to Decentralized Intelligence, 2026

Authors: R. Morandi, M. Picone, N. Bicocchi, M. Fogli, C. Giannelli

Link: <https://doi.org/10.1016/j.future.2026.108808>

[2026]

Event-Driven Digital Twins International Conference on Advanced Information Systems Engineering (CAiSE), Verona, Italy, 2026

Authors: M. Picone, R. Morandi, S. Burattini, A. Croatti, S. Mariani, S. Montagna

Link: https://doi.org/10.1007/978-3-032-28160-9_5

[2026]

Orbitalis: A Distributed Microkernel Framework IFIP International Conference on Distributed Applications and Interoperable Systems (DAIS), Urbino, Italy, 2026

Authors: N. Ricciardi, M. Picone, R. Morandi, N. Bicocchi

Link: https://doi.org/10.1007/978-3-032-27358-1_6

[2025]

Towards Intelligent Monitoring and Control of Industrial Internet of Things Deployments with Causality-aware Digital Twins ISIoT 2025 (7th International Workshop on Intelligent Systems for the Internet of Things), 2025 IEEE 21st International Conference On Distributed Computing In Smart Systems And The Internet Of Things (DCOSS), Lucca, IT, 2025

Authors: S. Mariani, M. Martinelli, R. Morandi, A. Barbone, M. Picone

Link: <https://doi.org/10.1109/DCOSS-IoT65416.2025.00089>

[2025]

Harmonizing Physical and Digital Twins Lifecycles 4th International Workshop on Architecting and Engineering Digital Twins (AEDT). Co-Located with 22nd IEEE International Conference on Software Architecture (ICSA 2025) 31st March - 4th April 2025, Odense, Denmark

Authors: M. Picone, R. Morandi, A. Barbone, S. Burattini, M. Fogli, N. Bicocchi, C. Giannelli, A. Ricci

Link: <https://doi.org/10.1109/ICSA-C65153.2025.00039>

[2025]

Human in the Loop in Digital Twins enabled Active Learning: A Proposed Architecture International Workshop on Architecting with Human in the Loop (HILA). Co-Located with 22nd IEEE International Conference on Software Architecture (ICSA 2025) 31st March - 4th April 2025, Odense, Denmark

Authors: L. Lamazzi, F. Franco, R. Morandi, M. Picone, L. Bedogni

Link: <https://doi.org/10.1109/ICSA-C65153.2025.00054>

[2025]

From Physical to Digital: Exploring Digital Twins within the Modena Automotive Smart Area 2025 IEEE 22nd Consumer Communications & Networking Conference (CCNC) Las Vegas, NV, USA, 2025

Authors: M. Picone, A. Barbone, R. Morandi, E. Rossini, A. Masola, M. Pietri R. Cavicchioli, C. A. Grazia, M. Mamei, M. Bertogna

Link: <https://doi.org/10.1109/CCNC54725.2025.10976222>

[2025]

On-Device AI and Digital Twins: A Synergistic Approach to Intelligent Cyber-Physical Systems Future Generation Computer Systems (FGCS) Special Issue "On-device Artificial Intelligence solutions with applications on Smart Environments", 2025

Authors: A. Barbone, N. Bicocchi, M. Martinelli, R. Morandi, M. Picone

Link: <https://doi.org/10.1016/j.future.2025.108068>

[2025]

Real-Time Systems & Digital Twins: Exploring Integration Challenges and Requirements IEEE International Conference on Enabling Technologies: Infrastructure for Collaborative Enterprises (WETICE), Catania, Italy, 2025

Authors: R. Morandi, M. Picone, N. Bicocchi

Link: <https://doi.org/10.1109/WETICE67341.2025.11091961>

[2025]

Modular Engineering of Industrial Digital Twins: The WLDT Approach 7th International Workshop on IoT Applications and Industry 5.0 (IoT5), 2025 IEEE 21st International Conference On Distributed Computing In Smart Systems And The Internet Of Things (DCOSS) Lucca, Italy, 2025

Authors: M. Martinelli, A. Barbone, R. Morandi, M. Picone, S. Burattini, A. Ricci

Link: <https://doi.org/10.1109/DCOSS-IoT65416.2025.00077>

[2024]

Towards Operator Digital Twins in Industry 5.0: Design Strategies & Experimental Evaluation IEEE International Conference on Pervasive Computing and Communications Workshops and other Affiliated Events (PerCom Workshops), Biarritz, France, 2024

Authors: M. Picone, R. Morandi, V. Villani, M. Pietri and L. Bedogni

Link: <https://doi.org/10.1109/PerComWorkshops59983.2024.10502969>

CREATIVE WORKS

[20/06/2025 – 21/06/2025]

CREDEMHACK: Generate with AI Participation in the Credem Generative AI Hackathon. Design of a system for classifying internal documents at Credem.
Hackathon result: third place.

[25/10/2024 – 27/10/2024]

Maker Faire Rome Exhibitor Exhibitor at Maker Faire Rome 2024. Presentation of Digital Twins applied to Smart Manufacturing and Industry 4.0, featuring miniature representations of industrial processes (Fischertechnik).

Link: <https://makerfairerome.eu/it/espositori/?edition=2024&exhibit=2420464>

[27/09/2023 – 29/09/2023]

Hackaton Green and Digital Transformation Participation in the Mantua hackathon on digital transformation for environmental monitoring. Design of an intelligent system for monitoring drinking water consumption within homes.

[12/11/2022 – 13/11/2022]

EICMA 2022 Exhibitor Display of the Dots HMI system, developed for the CEMP project, at the EICMA 2022 global motorcycle trade show (Dell'Orto stand).

[25/09/2021 – 27/09/2021]

Hackaton H-ABLE Participation in the Mantua Hackathon on disability in sports. Development of a running assistance system for the visually impaired on athletics tracks.

Hackathon result: first place.