



Marie Curie Postdoc Fellowship

2026



1. Supervisor

Supervisor: Fabrizio Fornari – School of Science and Technology – Computer Science

Website: <https://fabriziofornari.github.io/>

Fabrizio Fornari is Assistant Professor (RTD-B) in Computer Science at the **University of Camerino (UNICAM), School of Science and Technology**, where he is a member of the **PROS Lab - Processes and Services Laboratory**.

His research focuses on **business process management, Internet of Things, digital twins, and model-driven engineering**, with the goal of supporting the development and analysis of complex distributed and process-aware systems. His work explores modelling techniques and software engineering approaches for IoT-enabled systems, process analytics, and digital ecosystems. More recently, his research interests have expanded toward **Digital Twins, Virtual Worlds, and immersive digital environments**, investigating how these technologies can support **interactive systems, simulation environments, and gamified experiences** for education, industry, and digital innovation.

At the University of Camerino he teaches **Applied Game Design**, where students explore the design of interactive and gamified digital experiences using modern game development tools and methodologies.

He actively collaborates with international research groups and participates in European and national research initiatives related to **digital transformation, IoT systems, and Virtual Worlds technologies**.

He is co-organizer of the **MIDAS4CS workshop (Modelling and Implementation of Digital Twins for Complex Systems)**, an international workshop series dedicated to research on Digital Twins, modelling techniques, and complex cyber-physical systems.

He coordinates the **OMiLAB node at the University of Camerino**, part of the international OMiLAB network, promoting collaboration among students, researchers, and professionals in the areas of **Model-Driven Engineering and IoT**, and supporting experimentation and innovation through shared tools and research infrastructures.

A total of **40 scientific publications**, including peer-reviewed journal articles, conference papers, book chapters, and pre-prints in the areas of **software engineering, business process management, IoT systems, digital twins and virtual worlds**.

ORCID: <https://orcid.org/0000-0002-3620-1723>

Most recent and relevant publications:

- **Fornari, F.**, Cova, E., Vacca, N. V., Bocci, F., & Caputo, L. (2026). Assessing Problem-Solving in HR Contexts: A Comparison Between Game-Based and Self-Report Measures. *arXiv preprint arXiv:2602.05525*. (submitted to a Journal)
- Giachini, D., Ciambezi, L., Del Rosso, V., Fornari, F., Pansanella, V., Popoyan, L., & Sîrbu, A. (2025). Navigating the Lobbying Landscape: Insights from Opinion Dynamics Models. *arXiv preprint arXiv:2507.13767*. (submitted to a Journal)
- **Fornari, F., et al. (2025)** Digital Twins of Business Processes: A Research Manifesto. *Internet of Things*.
- Callisto De Donato, M., Corradini, F., Fornari, F., & Re, B. (2025). IoT and Digital Twin for Monitoring and Simulating Living Spaces Scenarios. In *Networking Data Integrity and Manipulation in Cyber-Physical and Communication Systems* (pp. 247-270). Cham: Springer Nature Switzerland.
- Casadei, R., **Fornari, F.**, Mariani, S., Savaglio, C. (2025) Programming IoT Systems: A Focused Conceptual Framework and Survey of Approaches. *Internet of Things*.



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Projects

- Local unit coordinator at UNICAM for the **PRIN PNRR 2022 – ALMONDO**. *Analyzing climate Lobbying with a simulation Model based ON Dynamic Opinions.*
- Member of the **Digital Europe project UPRAISE – Virtual Worlds Innovation Masters: Shaping Future Digital Skills Europe**, focused on advanced digital skills and virtual worlds technologies.
- **Industrial Research Project – MAC Srl (Italy)**
Scientific coordinator at the University of Camerino for an industrial research contract on *Artificial Intelligence, Edge and Cloud Computing for product digitalization.*
- **Industrial Research Project – AFEA Srl (Italy)**
Scientific coordinator at the University of Camerino for research and consulting activities within the project *Connected Care Pathway – Software architecture for managing digital healthcare diagnostic and therapeutic pathways.*

Awards and Recognition

- **SoSyM First Paper Award – MODELS 2024**
for the paper “*FloBP: A model-driven approach for developing and executing IoT-enhanced business processes.*”
- **Best Demo and Resources Award – BPM 2023 Conference**
for “*BPMN Inspector: A Tool for Extracting Features from BPMN Models.*”
- **Runner-Up Best Demonstration Award – BPM 2022 Conference**
for the tool “*BPMN-Redrawer: From Images to BPMN Models.*”

Contacts: Fabrizio Fornari fabrizio.fornari@unicam.it

2. Research Group and Facilities

Laboratory & Facilities:

Research activities are carried out within the **Computer Science section of the School of Science and Technology at the University of Camerino (UNICAM)**. The facilities available for research include the infrastructures of the **UNICAM OMiLAB Node**, part of the international OMiLAB network, and those of the **PROS (Processes and Services) Research Lab**.

These laboratories support research and prototyping activities in **IoT systems, Digital Twins, Virtual Worlds, and interactive applications**, providing an experimental environment for both research and teaching activities.

The infrastructure includes equipment for **IoT development, robotics experimentation, and immersive virtual environments**, such as:

- **VR headsets**, including **Meta Quest** devices and **HP Reverb G2**, used for the development and testing of immersive XR and virtual world applications.
- **IoT development platforms**, including **Raspberry Pi** and **Arduino UNO** boards.
- **IoT sensors and modules**, such as temperature sensors (DHT), ultrasonic sensors (HC-SR04), RFID modules (RC-522), Bluetooth modules (HC-05), and color sensors (GY-31).
- **Robotics prototyping equipment**, including the **Dobot Magician robotic arm**, used for experimentation with automation, IoT integration, and digital twin scenarios.
- Prototyping tools such as **breadboards, electronic components, and development workstations** for embedded systems and interactive applications.



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The laboratory is continuously evolving, with plans to **expand the VR/XR infrastructure and equipment** to support future research on **Virtual Worlds, Digital Twins, and gamified interactive environments**.

Research Network:

The research activities are mainly embedded within the **UPRAISE European consortium** (<https://www.linkedin.com/company/upraiseproject/>), a large interdisciplinary network of universities, research centres, industry partners and innovation hubs working on Virtual Worlds technologies and advanced digital skills.

The research group is also connected to the international OMiLAB network through the OMiLAB@UNICAM node, promoting collaboration among researchers, students and professionals in Model-Driven Engineering and IoT.

Additional collaborations may be developed through initiatives such as the KreativEU project, further strengthening connections with European partners working on creative technologies and immersive environments.

3. Research Thematic Area/Project Idea

Title of the project: Immersive Virtual Worlds and Digital Twins for Collaborative Digital Ecosystems

Macroarea: Information Science and Engineering

Keywords:

- Virtual Worlds
- Extended Reality (XR)
- Virtual Reality (VR)
- Digital Twins
- Immersive Collaboration
- Human-Computer Interaction
- Metaverse technologies
- Interactive simulation environments

Project Overview: The project aims to explore the development of **immersive virtual worlds and digital twin systems** supporting collaborative digital ecosystems.

Recent advances in XR technologies and virtual environments **enable the development of interactive platforms where users can interact with complex digital representations of physical or conceptual systems**.

The project will investigate:

- the design of **immersive collaborative virtual worlds**
- the integration of **digital twin technologies with XR environments**
- new interaction paradigms for **human-centered virtual environments**



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The research will combine approaches from **virtual reality, interactive systems, simulation and digital ecosystems**, aiming to develop novel frameworks for collaborative immersive environments applicable to domains such as research collaboration, education, and digital innovation platforms.

The fellow will have the opportunity to interact with the **UPRAISE European ecosystem**, including universities, research centres and industry partners working on Virtual Worlds technologies.

4. Candidate and Career Plan

Expected background of the candidate

The candidate should have a PhD in:

- Computer Science
- Human-Computer Interaction
- Virtual Reality / XR technologies
- Digital environments
- Interactive systems

Experience in one or more of the following areas is desirable:

- immersive technologies (VR/AR/XR)
- 3D environments
- simulation platforms
- digital twin systems
- collaborative virtual environments

Competences and knowledge to be developed by the candidate

The fellow will develop expertise in:

- immersive XR systems
- digital twin technologies
- virtual collaborative environments
- interdisciplinary research in digital ecosystems

The candidate will also benefit from:

- international research collaborations
- participation in European innovation networks
- experience in interdisciplinary research environments combining technology, digital innovation and immersive systems.