



## Sebastiano Gaiardelli

📍 Via Don Bosco, 10 Affi(VR), Italy

☎ +39 349 340 2945

✉ sebastiano.gaiardelli@univr.it

🌐 [linkedin.com/in/sebastianogaiardelli](https://www.linkedin.com/in/sebastianogaiardelli)

Born 16 December 1997

### EDUCATION

---

2021-2024

#### PhD student in Computer Science and Engineering

University of Verona

- Industry 4.0
- Cyber-physical production systems (CPPS)
- Production scheduling
- Knowledge representation
- Manufacturing Execution System (MES)

2019-2021

#### Master's degree in Computer Science and Engineering

University of Verona

- Final grade of 110/110 cum laude
- Supervisor: Prof. Franco Fummi
- Title of the thesis: "Meta-MES: A Scheduling Architecture for Flexible Automation"

2016-2019

#### Bachelor's Degree in Computer Science

University of Verona

- Final grade of 110/110
- Supervisor: Dr. Bogdan Mihai Maris
- Title of the thesis: "Continuous representation of digital signal"

### WORK EXPERIENCE

---

September 2023 – December 2023

#### Contract for Occasional Work

University of Verona

- Developed an optimization component for the production recipes executed by Adaptive Manufacturing Controller (AMC) in the ICE Laboratory.

October 2022 – November 2022

#### Contract for Occasional Work

University of Verona

- Focused on the integration of an ATE machine with the production recipes
- Development of a specific interface within the Meta-MES architecture to support ATE machines.

August 2021 – September 2021

#### Contract for Occasional Work

University of Verona

- Research activity in the context of Industry 4.0
- Development of a Meta-MES architecture to control CPPS.

December 2019 – July 2020

#### Software Engineer

Dovit Italia S.r.l.

- Focused on the integration of new device driver and new functionalities for the IoT gateway "Do.Control"
- Developed and managed the cloud infrastructure managing the integration between the IoT gateway with many cloud services (e.g., Google Home, Alexa, IFTTT, Spotify, Telegram)
- Owned technical leadership responsibilities for research and development of future product features and services

December 2018 – December  
2019

## Software Engineer

Home Innovation S.r.l.

- Focused on the integration of new device driver and new functionalities for the IoT gateway "Do.Control"
- Developed and managed the cloud infrastructure managing the integration between the IoT gateway with many cloud services (e.g., Google Home, Alexa, IFTTT, Spotify, Telegram)
- Owned technical leadership responsibilities for research and development of future product features and services

## TEACHING EXPERIENCE

---

October 2023 – July 2024

### Teaching Assistant (14 hours)

- Course Name: Embedded & IoT System Design
- Master Degree: University of Verona, Computer Engineering for Robotics and Smart Industry
- Language: English

October 2022 – July 2023

### Teaching Assistant (14 hours)

- Course Name: Embedded & IoT System Design
- Master Degree: University of Verona, Computer Engineering for Robotics and Smart Industry
- Language: English

October 2022 – July 2023

### Teaching Assistant (30 hours)

- Course Name: Architettura degli elaboratori
- Degree: University of Verona, Computer Science
- Language: Italian

October 2021 – July 2022

### Teaching Assistant (30 hours)

- Course Name: Architettura degli elaboratori
- Degree: University of Verona, Computer Science
- Language: Italian

## VISITING EXPERIENCE

---

February 2024 – July 2024

### Technische Universität München (TUM) - Institute of Automation and Information Systems

- Visiting Ph.D. student
- Supervisor: Prof. Dr.-Ing. Birgit Vogel-Heuser

## PUBLICATIONS

---

- [1] S. Gaiardelli, M. Lora, S. Spellini and F. Fummi, "RRPDG: A Graph Model to Enable AI-Based Production Reconfiguration and Optimization," in IEEE Transactions on Industrial Informatics, doi: 10.1109/TII.2024.3352645.
- [2] M. Libro, S. Gaiardelli, M. Lora, F. Fummi, "Integrating Modeling Languages with Ontologies in the Context of Industry 4.0," 2024 IEEE International Conference on Industrial Technology (ICIT), 2024
- [3] S. Gaiardelli, N. Dall'Ora, F. Ponzio, E. Fraccaroli, F. Fummi, S. Di Cataldo et al., "A Data Fusion Service-Oriented Infrastructure for Production Line Monitoring," 2024 IEEE International Conference on Industrial Technology (ICIT), 2024
- [4] A. Mascolini, S. Gaiardelli, F. Ponzio, N. Dall'Ora, E. Macii, S. Vinco et al., "VARADE: a Variational-based AutoRegressive model for Anomaly Detection on the Edge," 2024 61th ACM/IEEE Design Automation Conference (DAC), 2024
- [5] M. Lora, S. Gaiardelli, C. Oh, S. Spellini, P. Nuzzo, and F. Fummi, "Design Automation for Cyber-Physical Production Systems: Lessons Learned from the DeFacto Project," 2024 Design, Automation & Test in Europe Conference & Exhibition (DATE), 2024

- [6] K. Alamin, D. Appello, A. Beghi, N. Dall’Ora, F. Depaoli, S. Di Cataldo et al., “An AI-Enabled Framework for Smart Semiconductor Manufacturing,” 2024 Design, Automation & Test in Europe Conference & Exhibition (DATE) , 2024
- [7] L. Capogrosso, A. Mascolini, F. Girella, G. Skenderi, S. Gaiardelli, N. Dall’Ora et al., “Neuro-Symbolic Empowered Denoising Diffusion Probabilistic Models for Real-Time Anomaly Detection in Industry 4.0: Wild-and-Crazy-Idea Paper,” 2023 Forum on Specification & Design Languages (FDL), Turin, Italy, 2023, pp. 1-4, doi: 10.1109/FDL59689.2023.10272095.
- [8] A. Mascolini, S. Gaiardelli, F. Ponzio, N. Dall’Ora, E. Macii et al., “Robotic Arm Dataset (RoAD): a Dataset to Support the Design and Test of Machine Learning-driven Anomaly Detection in a Production Line,” (IECON 2023) - 49nd Annual Conference on IEEE Industrial Electronics, 2023, pp. 1-7, doi: 10.1109/IECON51785.2023.10311726.
- [9] S. Gaiardelli, S. Spellini, M. Pasqua, M. Ceccato and F. Fummi, “Integrating Smart Contracts in Manufacturing for Automated Assessment of Production Quality,” (IECON 2022) - 48nd Annual Conference on IEEE Industrial Electronics, 2022, pp. 1-6, doi: 10.1109/IECON49645.2022.9968887.
- [10] K. Alamin, Y. Chen, S. Gaiardelli, S. Spellini, A. Calimera et al., “SMART-IC: Smart Monitoring and Production Optimization for Zero-waste Semiconductor Manufacturing,” 2022 23th Latin-American Test Symposium (LATS), 2022, pp. 1-6, doi: 10.1109/LATS57337.2022.9937011.
- [11] S. Gaiardelli, D. Carra, S. Spellini and F. Fummi, “On the Impact of Transport Times in Flexible Job Shop Scheduling Problems” 2022 27th IEEE International Conference on Emerging Technologies and Factory Automation (ETFA), pp. 1-8, doi: 10.1109/ETFA52439.2022.9921441.
- [12] S. Gaiardelli, S. Spellini, M. Panato, M. Lora and F. Fummi, “A Software Architecture to Control Service-Oriented Manufacturing Systems,” 2022 Design, Automation & Test in Europe Conference & Exhibition (DATE), 2022, pp. 40-43, doi: 10.23919/DATE54114.2022.9774522.
- [13] S. Gaiardelli, S. Spellini, M. Lora and F. Fummi, “A Hierarchical Modeling Approach to Improve Scheduling of Manufacturing Processes,” 2022 IEEE 31st International Symposium on Industrial Electronics (ISIE), 2022, pp. 226-232, doi: 10.1109/ISIE51582.2022.9831468.
- [14] S. Gaiardelli, S. Spellini, M. Lora and F. Fummi, “Modeling in Industry 5.0: What Is There and What Is Missing: Special Session 1: Languages for Industry 5.0,” 2021 Forum on specification & Design Languages (FDL), 2021, pp. 01-08, doi: 10.1109/FDL53530.2021.9568371.
- [15] S. Spellini, S. Gaiardelli, M. Lora and F. Fummi, “Enabling Component Reuse in Model-based System Engineering of Cyber-Physical Production Systems,” 2021 26th IEEE International Conference on Emerging Technologies and Factory Automation (ETFA) , 2021, pp. 1-8, doi: 10.1109/ETFA45728.2021.9613572.

**PUBLICATIONS UNDER  
REVIEW**

---

S. Gaiardelli, D. Carra, S. Spellini and F. Fummi, “Dynamic Job and Conveyor-based Transport Joint Scheduling in Flexible Manufacturing Systems,” submitted to Applied Industrial Technologies.

S. Gaiardelli, S. Spellini, M. Panato, C. Tadiello, M. Lora, D. S. Cheng and F. Fummi, “Enabling Service-oriented Manufacturing through Architectures, Models and Protocols,” submitted to IEEE Access.

**PERSONAL SKILLS AND  
COMPETENCES**

---

**Languages** English: Intermediate written and spoken.  
Italian: Native speaker.

**Personal skills** Motivated | Organized | Responsible | Ambitious | Energetic | Independent | Versatile | Decision-making | Cooperative | Team leadership | Goal setting | Determined | Accurate

**Digital Skills** Linux (Debian/Ubuntu/RedHat) Distributions | Windows | Microsoft Office | Libre Office | Git | Object-Oriented Programming | Database | Python | C# | C++ | Java | C | Javascript | HDL Languages | LaTeX | HTML | BASH | Edge Computing | Embedded Software | Cloud computing | AWS | Google Cloud Platform | Kubernetes | Docker | Virtualization | OPC UA | IoT | IIoT | CPPS | CPS

I authorize the handling of my personal data according to the Personal Data Protection Code - Legislative Decree n. 196/03. and GDPR 679/16 "European regulation on the protection of personal data".

Verona 19th February 2024,