

Elias Montini

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Age 28



His research activity has been carried out mainly through research projects funded at national and international levels in the context of digitization in manufacturing. The scientific activities address process innovation achieved through factory digitization and adaptive automation to support human and machine interaction. He has experience in the design and development of work environments, where humans and machines complement their capacities to optimize performances and improve workers' wellbeing.

Education and qualifications

- 2020-ongoing** Information Technology PhD-Executive at **Polytechnic of Milan**, MERLIN laboratory.
- 2019** **Master of Science in Engineering (MSE)** with specialization in Business Engineering and Production at **SUPSI (Lugano)**. Completion of the MSE degree with 30 additional ETCs, reaching a total of 120 ETCs.
- 2015 - 2018** - **Master of Science in Engineering (MSE)** with specialization in Business Engineering and Production at University of Applied Sciences of Southern Switzerland (**SUPSI**) and Zurich University of Applied Sciences (**ZHAW**). Thesis title: **Shop Floor Management: model framework and implementation in the power supply industry** (thesis grade: A)
- 2012 - 2015** - **Management Engineering** at the University of Applied Sciences of Southern Switzerland. Thesis title: **Analysis and improvement of the operational and logistic management of a highly dynamic global fashion supply chain** (thesis grade: 5.9/6)
- 2014 - 2015** - **Management Engineering** at **Polytechnic of Milan** thanks to the exchange program: courses of Control systems and automation fundamentals; Business and management; operational research and optimization.
- February 2014** Course of **"Fashion and Luxury Sustainability"** at the Summer School of SUPSI; Course of **"Design Thinking"** at the International Winter School of Lucerne taught by Professor Larry J. Leifer, Director of the Center for Design Research at Stanford University.

Research and work experience

- 2020-ongoing** **Researcher at ISTePS (SUPSI-DTI)**
Main projects and activities:
- **platform-enabled KITS of arTificial intelligence FOR an easy uptake by SMEs** (KIT4SME) – I4MS: contribution to the proposal development and drawing up; platform specifications definition; design and management of a uses case introducing AI-based quality systems in a tweezers production process.
 - **Safe and Trusted Human Centric Artificial Intelligence in Future Manufacturing Lines** (STAR) – ICT38: design and implementation of human-centric digital models; design and development of digital twins for AI-based applications; the person in charge for SUPSI for project's activities coordination and Work Package 5 lead.
- Teaching and supervising**
- Lean Manufacturing at the Bachelor of Science in Management Engineering.
 - Information Systems at Master of Advanced Study in IT Management: lectures on "Process Engineering".
 - Supervisor of 6 thesis projects in the field of shop floor management and lean manufacturing in collaboration with KerrHawe SA, 2019 (Award: Talent Thesis 2019), ABB Power Protection SA, Plastifil SA and TechInsta SA.
- 2016** **Research Assistant at ISTePS (SUPSI-DTI)**
Main projects and activities:
- **COLlaborative robot aMPLifying and Extending huMAN capabilities** (COMPLEMENT) - I4MS phase 2 Innovation Action: design and deployment of a work cell and process configurations to realise a **production system** where workers and cobot complement their capacities to achieve optimized manufacturing performance and to improve workers' wellbeing.
 - **RE-manufaCturing and Refurbishment LARge Industrial equipment** (RECLAIM) - NMBP-FOF-2019 - analysis of the existing methodologies to assess machines reliability and Residual Usefull life (RUL), development of a python tool to support machines and system reliability analysis, design of a **web-platform** to manage and analyse failures.

- **MANufacturing ecoSystem of QUALified Resources Exchange (MANU-SQUARE)** - FOF-11-2016 platform's specifications definition, design of platform's business processes, reference person between the business and the development team.
- **Distributed control and simulAtion platform to support an Ecosystem of DigitAl aUtomation developerS (DAEDALUS)** - FOF-11-2016: analysis of the current automation value chain and business logics, design of a business model for a multi-sided platform for industrial automation based on IEC-61499.

Further qualified contributions have been provided to:

- **Lean manufacturing in Idealtel SA:** creation of specific guidelines for Lean Manufacturing implementation, with particular attention to cultural changes and 5S implementation.

2017-2018 Internship at ABB Power Protection: development and implementation of Shop-Floor Management procedures & tools; development of non-conformities management procedures and tools; training to employees about quality and non-conformities management; planning and implementation of Kanban system for the UPScale production line; continuous improvement activities.

2015 Internship at Expeditors International Lugano: account management and air import management; management and monitoring a F2F traffic for an important fashion brand.

Publications

An AI adoption model for SMEs: a conceptual framework. Bettoni A., Matteri D., **Montini E.**, Bartłomiej G., Carpanzano E.. 2021. IFAC-INCOM 2021. 17th IFAC Symposium on Information Control Problems in Manufacturing.

Empirical evidence from the design of a MaaS platform. Corti D., Bettoni A., **Montini E.**, Barni A., Arica E. 2021. 17th IFAC Symposium on Information Control Problems in Manufacturing.

Mutualistic and Adaptive Human-Machine Collaboration Based on Machine Learning in an Injection Moulding Manufacturing Line. Bettoni A., **Montini E.**, Righi M., Villani V., Tsvetanov R., Borgia S., Secchi C., Carpanzano E.. 2020. 53rd CIRP Conference on Manufacturing Systems.

Building an Automation Software Ecosystem on the Top of IEC 61499. Barni A., **Montini E.**, Menato S., Landolfi G., chapter in the book "The Digital Shop-floor: Industrial Automation in the Industry 4.0 Era", 2019, River Publishers Series in Automation, Control and Robotics.

An Ontology Based Semantic Data Model Supporting a MaaS Digital Platform. Landolfi G., Barni, A., Izzo G., **Montini Elias**, Bettoni A., Vujasinovic M., Silva H. D. (2018, September). An ontology based semantic data model supporting a MaaS digital platform. In 2018 International Conference on Intelligent Systems (IS) (pp. 896-904). IEEE, 2018 International Conference on Intelligent Systems (IS), Funchal – Madeira (P). pp. 896-904.

Integrating agent-based simulation in the design of multi-sided platform business model: a methodological approach. Barni Andrea, **Montini Elias**, Menato S., Sorlini M., Anaya V., Poler R.. June 2018. ICE 2018, Stuttgart (GE).

Development of a Digitalization Maturity Model for the manufacturing sector. Canetta L., Barni A., Montini E.. June 2018, ICE 2018. Stuttgart (GE).

A Multi-Level Approach to Improve Sustainability Performances of Industrial Agglomerations. Innocenti P., **Montini E.** Menato S. and Sorlini M.. 2017. International Journal of Environmental, Chemical, Ecological, Geological and Geophysical Engineering 11(6). ICIE 2017. Amsterdam (NL).

Challenges for the adoption of industrial symbiosis approaches within industrial agglomerations. Menato S., Carimati S., **Montini E.**, Innocenti P., Canetta L., Sorlini M.. 2017. ICE 2017. Madeira (P).

Autorizzo al trattamento dati ai sensi del GDPR 2016/679 del 27 aprile 2016 (Regolamento Europeo relativo alla protezione delle persone fisiche per quanto riguarda il trattamento dei dati personali).

Autorizzo la pubblicazione del Curriculum Vitae sul sito istituzionale del Politecnico di Milano (sez. Amministrazione Trasparente) in ottemperanza al D. Lgs n. 33 del 14 marzo 2013 (e s.m.i.).