curriculum vitae

PERSONAL INFORMATION

Surname		**Callupe Arias**
Name		**Maira**
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EDUCATION AND TRAINING

• Date (from – to)		February 2018 – April 2020
• Name and type of organisation providing education and training		Polytechnic University of Milan (Politecnico di Milano), University
Duration of the program of study		2 years
• Principal subjects/occupational skills covered		Production; logistics; supply chain management; accounting; finance; innovation; internationalization; technology management; industrial asset management; product life-cycle management; design and communication.
• Title of qualification awarded		Master of Science in Management Engineering

• Date (from – to)		February 2012 – February 2017
• Name and type of organisation providing education and training		Seoul National University (서울대학교), University
Duration of the program of study		5 years
• Principal subjects/occupational skills covered		Design, manufacture and control of machines and aircrafts; design for manufacturing; automation, robotics and sensors; programming; technology management; materials science; aero and thermal dynamics; technical drawing and writing.
• Title of qualification awarded		Bachelor of Science in Mechanical and Aerospace Engineering

GRADUATION THESIS

Title		Beyond the 'Lernfabrik': An inclusive overview of Learning Factories through the lens of Industry 4.0
Language		English
Supervisor		Luca Fumagalli, Elisa Negri
Thesis Summary		In the context of Industry 4.0, continuous and rapid technological advances in manufacturing have created the demand for a new set of specialized skills from individuals entering the workforce. Built upon the paradigm of integrating research, innovation and education, Learning Factories have shown to be promising in meeting this demand by providing a realistic industrial production environment for the training and education of the new workforce. Following several cases of successful implementation in Germany, in the last years Learning Factories are being established at an increased rate all over the world. However, due to the position of German Learning Factories as initiators of the movement, the bulk of academic literature -albeit valuable and significant- is focused on a reduced number of institutions mainly European, while the contributions associated to newer Learning Factories located outside Europe have a lesser presence. Thus, a comprehensive overview and discussion of Learning Factories with a wider scope beyond the German cluster is missing. The current work addresses this gap through an analysis carried out in two phases: a review of academic literature, followed by a quantitative

		and qualitative analysis of existing learning factories. The literature review is done through a bibliometric analysis of articles with focus on the topic of "Learning Factories" retrieved from journals and conference proceedings. Subsequently, the 36 learning factories identified from the Literature Review are further categorized and analyzed on the basis of their general features, research topics and digital maturity. The findings provide an insight into the decisive factors required for the success of learning factories: creation of a partnership with OEMs and/or service providers, securing access to public and/or private funding, joining and becoming active in the research network, and a knowledgeable team with experience and expertise to carry forward the learning factory. Due to their history and the extensive research contributions, the German Learning Factory has positioned itself as the reference model for several learning factories established in the last five years. However, a number of them are built and operate outside of the boundaries of the Learning Factory community. This highlights the need for a global extended network beyond the existing associations that facilitates the international collaboration between academic institutions, corporations and governments, with the aim of including and empowering less industrialized countries to make a smooth transition into Industry 4.0.

PUBLICATIONS AND ARTICLES SUBMITTED

Author(s) and title		M. Callupe, E. Negri, L. Fumagalli, "An inclusive overview of Learning Factories around the globe"
Language		English
Publication place		11th Conference on Learning Factories (CLF2021)
Date of publication		June 2021

Author(s) and title		M. Callupe, L. Fumagalli, D. D. Nucera, "Development of a learning pilot for the remote teaching of Smart Maintenance using open source tools"
Language		English
Publication place		7th International Conference on Higher Education Advances (HEAd'21)
Date of publication		July 2021

Author(s) and title		M. Callupe, M. Rossi, "Learning Spaces for engineering education: An exploratory research about the role of Lean Thinking"
Language		English
Publication place		7th European Lean Educator Conference (ELEC2021)
Date of publication		Nov 2021

Certifications and awards

Certifications of language knowledge		- TOEFL Internet-based Test, 2017, 108. - TOPIK Test of Proficiency in Korean, 2016, level 5.
Awards		- Korean Government Scholarship Program for International Students 2011 Scholarship funded by the South Korean government to conduct undergraduate level studies.

Work experience, stages, studies abroad

• Date (from – to)		June 2020 - Present
• Name and address of firm/university		Politecnico di Milano, Via Lambruschini 4/b, 22156 Milano, Italy
• Type of business or sector		Higher Education
• Type of employment		Research Fellow
• Main activities and responsibilities		- Conducts research on the topics of education in manufacturing, learning factories, learning spaces and ecosystems, education 4.0, and serious games for engineering education. - Developed and tested learning materials for a course on Smart Maintenance based on Python

		using computational notebooks (currently on its 2nd iteration). - Tutored and supported students in product development project using methodologies learned during the class "Product Life-cycle Management". - Support with management and coordination of EU-funded projects: • e-SHyIPS ("Ecosystemic knowledge in Standards for Hydrogen Implementation on Passenger Ship") Project management and coordination: progress reporting, internal and external communication management, Advisory Board management and networking. Development of learning ecosystem for knowledge capture and transfer based on scientific literature. • NePRev ("Setting up a multidisciplinary joint master degree dedicated to the Next Production Revolution") Organized and coordinated a training program for faculty staff to support the exchange of methodologies and facilitate the creation of teaching materials and the development of research activities in line with the project agenda.

• Date (from – to)		March 2019 – July 2019
• Name and address of firm/university		Automotive Lighting, Via Giuseppe Cavallo 18, 10078 Venaria Reale, Torino, Italy
• Type of business or sector		Automotive Components Manufacturer
• Type of employment		Intern in Global Logistics
• Main activities and responsibilities		- Implementation of cost reduction initiatives based on data analysis resulting in 6% reduction of global premium freight costs. - Implementation of systematic data collection process to provide logistics costs data in real time. - Coordinated development of new products for OEMs (McLaren, GM, Ferrari) overseeing product documentation (RFQ, PFMEA, Control Plan) and preparation for client quality audits.

• Date (from – to)		February 2017 – February 2018
• Name and address of firm/university		Seojincam Co. Ltd., 31 Cheongbuksandan-ro, Pyeongtaek-si, Gyeonggi-do, South Korea
• Type of business or sector		Automotive Components Manufacturer
• Type of employment		Junior Product Development Engineer
• Main activities and responsibilities		- Coordinated development of new products for OEMs (McLaren, GM) overseeing product documentation (RFQ, PFMEA, Control Plan) and preparation for client quality audits. - Supported management of international OEM customers (Mercury Marine, FCA, GM, Mahindra, McLaren) by facilitating feedback and contract negotiations.

• Date (from – to)		September 2016 – February 2017
• Name and address of firm/university		Seoul National University, 1 Gwanak-ro, Gwanak-gu, Seoul, South Korea
• Type of business or sector		Higher Education
• Type of employment		Undergraduate teaching assistant
• Main activities and responsibilities		- Assisted projects on operation and maintenance of water distribution systems in rural areas by researching initiatives and implementation models in developing countries.

Personal skills and competences

Acquired in the course of life and career but not necessarily evidenced by formal certificates and diplomas.

Mother tongue		**Spanish**

Other language(s)

		English
• reading		Excellent
• writing		Excellent
• speaking		Excellent
		Italian
• reading		Excellent
• writing		Good
• speaking		Good
		Korean
• reading		Good
• writing		Good
• speaking		Good

Technical skills and competences *With computers, specific kinds of equipment, machinery, etc.*		- Design/3D modelling: Catia, Solidworks, proE. - Programming/Simulation: Python, MATlab, Simulink, Arduino, Visual Studio. - Others: Minitab, Power BI, Tableau, Office Suit.