curriculum vitae

PERSONAL INFORMATION

Surname		**Zappa**
Name		**Sofia**
E-mail		**sofia.zappa@polimi.it**
Nationality		Italian
Date of birth		09/11/1997

Education and training

• Date (from – to)		December 2023 – (expected) December 2026
• Name and type of organisation providing education and training		Politecnico di Milano
Duration of the program of study		Three years
• Principal subjects/occupational skills covered		Industry 4.0; Cognitive Digital Twin; Sustainable Production Systems; Industrial Asset Management
• Title of qualification awarded		**PhD in Management Engineering**
Final mark obtained		-

• Date (from – to)		September 2021 – December 2023
• Name and type of organisation providing education and training		Politecnico di Milano
Duration of the program of study		Two years
• Principal subjects/occupational skills covered		Advanced Manufacturing, Industrial Management, Industrial automation and robotics, Manufacturing systems engineering, Advanced Modeling for operations, Data-driven modeling of dynamical systems and optimal control
• Title of qualification awarded		**Master of Science in Management Engineering**
Final mark obtained		105/110

• Date (from – to)		September 2017 – March 2021
• Name and type of organisation providing education and training		Politecnico di Milano
Duration of the program of study		Three years
• Principal subjects/occupational		Industrial plants management, Manufacturing and quality, Fundamentals of automatic control,

skills covered		Logistics and production systems management
• Title of qualification awarded		**Bachelor of Science in Management and Production Engineering**
Final mark obtained		92/110

certifications

Certifications of language knowledge		EAS Milan certificate: **TOEIC Listening and Reading** - Date: 21/12/2020, B2
Certifications of technical knowledge .		• MasterExcel: **Advanced Excel online certified course** – Date: 24/08/2021, Score: no mark, course completion certification • Udemy: **Complete course on programming in Python-2021** – Date: 08/09/2021, Score: no mark, course completion certification • **NVIDIA DLI Certificate of Competency on Fundamentals of Deep Learning** – Date: 08/11/2022, Score: no mark, course completion certification

Work experience, stages, studies abroad

• Date (from – to)		June 2023 – December 2023
• Name and address of firm/university		**CRAN (Nancy Research Centre for Automatic Control), a joint research unit shared by the University of Lorraine and CNRS** Address: CAMPUS SCIENCES - BP 70239 - 54506 Vandoeuvre-lès-Nancy – Cedex, **France**
• Type of business or sector		Research department ISET (Eco-Technical Systems Engineering Department)
• Type of employment		Visiting master thesis student
• Main activities and responsibilities		Development of the M.Sc. thesis titled '**Cognitive Digital Twin for maintenance human decision-making support in manufacturing: a conceptual framework and its application in fault diagnosis**'. The main activities consisted in: • Development of a human-in-the-loop-based framework for Cognitive Digital Twin for fault diagnosis decision-making support in maintenance • Proposal of a blend of technologies to allow the implementation of the CDT in a real context • Extension and semantic revisitation of the existent maintenance domain ontology KARMA for fault diagnosis • Implementation and assessment of the human-in-the-loop-based framework for Cognitive Digital Twin in the TELMA facility at the laboratory of research CRAN by the University of Lorraine and CNRS.

• Date (from – to)		April 2022 – June 2022
• Name and address of firm/university		**Intellimech** Address: Via Stezzano, 87, 24126 Bergamo BG, Italia
• Type of business or sector		Research & Development in the field of Mechatronics
• Type of employment		Intern
• Main activities and responsibilities		The project aimed at the application of data analysis techniques (vibrations data analysis) to roller conveyors for the transport of material of the enterprise **Rulmeca**, with the final purpose of **identifying a set of predictive maintenance algorithms for condition monitoring aimed to exploit, in an integrated methodology, the data sourced via industrial automation.** Therefore, the main contributions can be summarized as: • Study of the **vibration analysis**, both time and frequency domain • Application of **data analytics techniques** to accelerometric data of test bench rollers • Development of **predictive maintenance algorithms** for condition monitoring with Matlab • Deepening of the topic of **Prognostics and Health Management** of rolling elements.

• Date (from – to)		September 2020 – December 2020
• Name and address of firm/university		**Bim Group** Address: Via Selvaregina, 30, 22063 Cantù CO, Italia

• Type of business or sector		Manufacturing sector – Purchasing office of customized components
• Type of employment		Intern
• Main activities and responsibilities		Development of the B.Sc. thesis titled '**Analysis and optimization of the purchasing process of semi-finished products: the BIm case**'. The main activities consisted in: • Deepening the enterprise's **purchasing process of mechanical components and semi-finished products** from its suppliers • **Analysis** and coherent **classification into product families** of the items from their technical drawings • Drafting of **price lists in accordance with the main company's providers** on the of both a cost estimator considering the main process parameters and historical database data.

Personal skills and competences

Mother tongue		**Italian**

Other language(s)

		English
• reading		Good
• writing		Good
• speaking		Good

		Japanese
• reading		Elementary
• writing		Elementary
• speaking		Elementary

Technical skills and competences		Software and programming skills: • ***Data management and data analysis software***: **Minitab** – good, **Excel** – good, **MySQL** – basic, **Insights Hub** platform (previously Mindsphere IoT Platform) – basic • ***Ontology editor***: **Protégé** – discrete • ***Programming languages***: **Matlab** – discrete, **Python** – discrete, **C++** - basic • ***Simulation software***: **Simulink** – basic, **MoveIt in ROS (Ubuntu on Linux)** – basic, **Technomatrix Plant Simulation** – basic

Artistic skills and competences		I have always been into sports, but of particular interest, I practiced karate for many years, also at a competitive level, under the J.K.A. (Japan Karate Association) Italy. This experience, specifically, taught me how to deal with pressure, it improved my discipline and sense of respect, self-control, and perseverance, and as an art, it also opened the doors to a new mentality.

Other skills and competences		From October 2022 to April 2023, I had the opportunity to participate in the **'Industry 4.0 contest 2022 with Insights Hub'** promoted by Siemens together with Politecnico di Milano with the creation of an application for real-time synchronized scheduling of operators with Insights Hub IoT platform. The proposed solution has been **awarded second**, and this allowed us to present our work to the Digital Industries Head of Siemens Italia in Siemens premises.