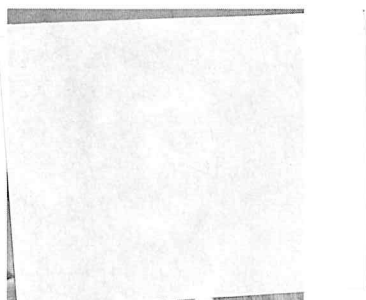


studi compiuti, i titoli conseguiti, le pubblicazioni e/o i rapporti tecnici e/o i brevetti, i servizi prestati, le funzioni svolte, gli incarichi ricoperti ed ogni altra attività scientifica, professionale e didattica eventualmente esercitata (in ordine cronologico iniziando dal titolo più recente).



curriculum vitae

PERSONAL INFORMATION

Surname	...	
Name	...	
Address	...	
Telephone	...	
Fax		
E-mail	...	
Skype	...	
Nationality	...	
Date of birth	...	

Work experience, stages, studies abroad

• Date (from – to)	16/11/2021 – 15/11/2022
• Name and address of firm/university	Politecnico di Milano DCMIC - Piazza Leonardo da Vinci, 32, 20133, Milano
• Type of business or sector	Department of Chemistry, Materials and Chemical Engineering - Institute of Condensed Matter Chemistry and Technologies for Energy
• Protocol	prot. n. 188839 (04/11/2021)
• Type of employment	Research fellow
• Main activities and responsibilities	My research is about the study of new materials and production techniques that could be employed in the fabrication of orthotic devices for athletes. The study is mainly focussed on the optimization of the printing parameters for the metallic additive manufacturing technique (Selective Laser Melting) , in which the feedstock material is a Magnesium alloy , specifically AZ91. Since this alloy is still relatively new to the SLM technique, an optimal combination of process parameters still needs to be found. The laser power, its velocity, the thickness of the powder layer and the hatch distance are the main parameters that describe the Volumetric Energy Density (VED) and need to be optimized.

	In order to minimize the prints required to find the optimal parameters, a Design Of Experiments (DOE) was implemented. Up to now, up to almost 96% in relative density has been achieved. Other than the density, quality assessment of the samples was performed via a metallographic investigation to study the micro and meso structure. Several weeks have been dedicated to this matter in order to find the best polishing sequence and etching solutions. During the study of SLM of AZ91, I developed a Finite Element Model (FEM) that replicates the laser-matter interaction at the mesoscale (melt pool dimensions). During the research activity, I also worked on the topological optimization of prototypes of orthotic devices, where the objective function was the minimization of material and the constraint was set to a certain ratio between the compliance of the initial geometry and the optimized one. To test the improved geometries from a technological point of view, Fused Filament Fabrication print was employed. Further and more detailed information can be found in "Annex N.1: SLM of Mg-alloy".
• Date (from – to)	7/09/2020 – 30/10/2020
• Name and address of firm/university	IMEC - Remisebosweg 1, 3001 Leuven, Belgium
• Type of business or sector	Nanoelectronics and digital technologies
• Type of employment	Intern student
• Main activities and responsibilities	IMEC is and R&D hub that leverages the combination of technologies to opens the door to smart, sustainable solutions in domains such as healthcare, clean energy and Industry 4.0. I worked in the Materials development research group. My main work was to characterize thin Cobalt films. I took part during the deposition process (MBE) and I was responsible of the structural (XRD, XRR), morphological (AFM) and especially magnetic characterization of the films via VSM (Vibrating-Sample Magnetometer).

Education and training	
• Date (from – to)	October 2021 – present (currently at the end of the first year)
• Name and type of organisation providing education and training	Politecnico di Milano
Duration of the program of study	3 years
• Principal subjects/occupational skills covered	Study of high performance innovative materials and production processes to be used in the fabrication of sportive orthotic devices.
• Title of qualification to be awarded	PhD in Materials Engineering
• Date (from – to)	October 2018 – February 2021
• Name and type of organisation providing education and training	EIT-KIC Dual Degree Tracks in Sustainable Materials Engineering a.y. 2018/2019 at UNIMIB – a.y. 2019/2020 at KU Leuven
Duration of the program of study	2 years
• Principal subjects/occupational skills covered	Advanced Solid state physics and Chemistry of materials and their applications. Key aspects of the second year: Materials and processing; Sustainability and Recycling; Circular (eco)design and Life Cycle Engineering; Materials Substitution; Manufacturing
• Title of qualification awarded	Dual Master's Degree in: Materials Science (UNIMIB) – Materials Engineering (KU Leuven); European Master's degree in Sustainable Materials with the EIT label of the European Institute of Innovation and Technology.



Final mark obtained	110/110 e Lode at UNIMIB – 75,20% Cum Laude at KU Leuven
• Date (from – to)	October 2015 – October 2018
• Name and type of organisation providing education and training	Università degli Studi di Milano Bicocca (UNIMIB)
Duration of the program of study	3 years
• Principal subjects/occupational skills covered	Basic Physics and Chemistry of materials, together with laboratory experiences to learn experimental techniques of materials characterization, such as DMA, DSC, XRD. Understanding of relationships between material structures and properties.
• Title of qualification awarded	Bachelor's degree in Materials Science
Final mark obtained	110/110
• Date (from – to)	2010 – 2015
• Name and type of organisation providing education and training	Istituto Tecnico Commerciale Parentucelli-Arzela
Duration of the program of study	5 years
• Principal subjects/occupational skills covered	Economy, Finance and Marketing
• Title of qualification awarded	High school graduation
Final mark obtained	100/100

Graduation thesis (Master's)

Title	Metal-to-Insulator Transition in VO ₂ thin films on (111) Si
Language	English
Supervisor	Alberto Maria Felice Paleari – Maria Jin Won Seo
Thesis Summary	Vanadium oxides have gained an increasing interest because of their Metal-to-Insulator (MIT) transition. Among these vanadium oxides, VO₂ is one of the most studied, because its MIT occurs near room temperature (RT) (69°C). It is common to obtain VO ₂ using high temperature deposition. However, this growth condition can hinder the implementation in several technologies which are temperature-sensitive. The goal of the present work was to study the evolution of VO ₂ thin films from VO_x deposited at RT on a (111) Si substrate via MBE and by applying three different annealing conditions. It has been found that the most effective way to develop crystalline VO ₂ is through the annealing in Forming Gas Annealing , whereas the one in Ar at high temperature results in the disruption of the film's morphology. Annealing in UHV seems to induce crystallization of V ₈ O ₁₅ . Finally, it has been observed that the background oxygen pressure during annealing plays a critical role in the evolution of VO ₂ .

certifications

Certifications of language knowledge	IELTS, 17/01/2019, 7.0
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Personal skills and competences

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

Mother tongue

Italian

Other language(s)

	English
• reading	Excellent
• writing	Good
• speaking	Good
	French
• reading	Good
• writing	Elementary
• speaking	Elementary

Social skills and competences
Living and working with other people, in multicultural environments, in positions where communication is important and situations where teamwork is essential (e.g. Culture and sports), etc.

I consider myself a social person but sometimes I also appreciate being alone. I like to work in an environment full of people with different backgrounds. I spend most of my spare time cycling, doing fitness activities and reading. I like to run, and I really enjoy playing volleyball. I also take interest in chess, sudokus and any other kind of riddle in general.

Organisational skills and competences
E.g. coordination and management of people, projects and budgets; at work, in voluntary work (e.g. culture and sports) and at home, etc.

During my studies I developed organizational skills and thanks to lot of group projects I understood the importance of work-sharing and communication. Moreover, these skills have been tested and boosted during a master's course named "Project management" which involved how to handle deadlines, budget constraints, unexpected events, etc... I'm also part of my village committee which is responsible to deal with the organization of festivals which used to welcome 500-1000 people a day.

Technical skills and competences
With computers, specific kinds of equipment, machinery, etc.

Characterization instrument for the following techniques:

- X-Ray Diffraction
- X-Ray Reflectivity
- X-ray Photoemission Spectroscopy
- Vibrating Sample Magnetometer
- Differential Scanning Calorimetry
- Optical Microscopes
- Polishers
- 3D polymeric printer (FFF)
- Selective Laser melting (SLM)

I have excellent knowledge of the Office package. I daily used Origin as data analysis software and LaTeX to write my documents. I have basic knowledge of MATLAB, Python and COMSOL. I have experience in the x-ray diffraction data analysis using Origin and Maud.

Artistic skills and competences
Music, writing, drawing etc.

I enjoy video-editing, mostly in the videogames sector.

Other skills and competences

I have farming competences and I like to cook. Driver license B1

Annexes	<ol style="list-style-type: none"> 1. Annex N.1: SLM of Mg-alloy 2. Annex N.2: Internship Report: Deposition and magnetic characterization of Cobalt thin films 3. Annex N.3: Skateboard Composite
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The undersigned FRANCESCO VOLONTE', in compliance with the request that this curriculum is presented in the form of self-certification in accordance with Presidential Decree 445/2000, aware of the planned criminal liability, art. 76 of the Presidential Decree 445/2000, for the cases of falsification of documents and false statements here reported, declare that all information contained in this curriculum vitae (including Annexes) are true.

This curriculum is composed of 5 pages plus 70 pages of Annexes

Lecco, li 21/10/2022

