curriculum vitae

PERSONAL INFORMATION

Surname		**Ahmed**
Name		**Tasnim Mahmoud Mohamed**
Address		
Telephone		
Fax		
E-mail		**Tasnim.ahmed@polimi.it**
Skype		

Nationality		Egyptian

Date of birth		

Education and training

• Date (from – to)		November 2021- Present
• Name and type of organisation providing education and training		Polytechnic University of Milan (Politecnico di Milano), University
Duration of the program of study		3 years
• Principal subjects/occupational skills covered		digital transformation; sustainable manufacturing
• Title of qualification awarded		Ph.D. in Management Engineering
Final mark obtained		

• Date (from – to)		September 2018- April 2021
• 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; accounting; finance; innovation; industrial asset management; lean management; quality engineering; purchasing and supply chain management; marketing; strategy; international economics; asset lifecycle management
• Title of qualification awarded		Master of Science in Management Engineering

• Date (from – to)		September 2013- June 2018
• Name and type of organisation		University of Science and Technology at Zewail City, University

providing education and training		
Duration of the program of study		5 years
• Principal subjects/occupational skills covered		Electromagnetism; linear algebra; thermodynamics; engineering design; material and energy balance; material science; circuit and electronics; fluid mechanics; environmental law and policy; renewable energy systems; heat transfer, aerodynamics; powerplant technology; energy storage; photovoltaic systems; applied numerical analysis
• Title of qualification awarded		Bachelor of Science in Renewable Energy Engineering

graduation thesis

Title		A Methodology for Real-Time Data Population of Asset Administration Shell for Manufacturing Systems
Language		English
Supervisor		Luca Fumagalli, Elisa Negri, Simone Galparoli
Thesis Summary		**Master of Science Thesis:** Within Industry 4.0 the communication between the physical and the cyber system is in ever growing rise in complexity within the manufacturing setting. Concepts and technologies for continuous digitization of output are being created as part of the Reference Architectural Model of Industry 4.0 (RAMI 4.0) to address the need of standardization and agility in the light of this complication. The Asset Administration Shell (AAS) is an information framework that describes an asset's technological features as well as its relationships to other assets, it was created to present data and information in a structured and semantically defined format, allowing for interoperability. It can be thought of as the data model for Digital Twin (DT). The thesis work addresses the industrial implementation of AAS by proposing a methodology for company teams to guide them through the process of creating AAS models and populating them with real-time data from the field for manufacturing systems. The aim of the designed methodology is to be user friendly and functional to be followed by non-IT experts in practical situations. It is also aimed at producing AAS models that could be utilized for the population of data into DT. The complex tools available for the creation of AAS models have been modified and re-scripted to be replaced by an off the shelf model that automatically populates the data, from an excel sheet, into the AAS without manual coding interference of the user. This not only saves time, but also effort and money for company teams. Through the work of this thesis, the usefulness of developing such kind of models in a manufacturing environment will be explored and evaluated. The proposed methodology has been applied within the Industry 4.0 Lab of the School of Management of Politecnico Di Milano to be validated. Finally, the work presented the significance that the developed methodology has both from the research aspects and from the industry aspects.

Title		Design of a Smart Sustainable Utility
Language		English
Supervisor		Dr. Amgad El-Deib
Thesis Summary		**Bachelor of Science Thesis:** The problem of electricity scarcity in Egypt's urban communities is still a major setback within the country's development track, but with the rapid emergence of renewable energy generation methodologies that penetrated the power grid and electricity market, this setback can be overcome. The integration of these energy sources into microgrids has shown prominent impact into making green energy solutions technically and economically feasible. This work addresses the adoption of sustainable solutions for the real estate and tourism industry, therefore, an operation simulator is designed to model the microgrid facility on Mathwork's Simulink software for the purpose of accurate sizing and operation. The inputs to the model are the load profile associated with our target customers behaviours, and solar radiation data based on the location which is Nuweibaa, Egypt. The three cases of operations modelled are a combination of PV/Battery/Diesel system. Optimal sizing of different generators of the different cases is calculated as well as the loss of load hours. A full economic analysis is presented for the three cases to show the full advantage and disadvantage of each case. Moreover, a graphical user interface is done for the real time monitoring of microgrid's operation for each case. Finally, the architectural design is presented which takes into consideration environmental impacts as well as the business plan for our solution of choice to provide a measure of its economic feasibility. From the findings of this project reliable sizing and operation of microgrids can be facilitated for designers and researchers.

Work experience, stages, studies abroad

• Date (from – to)		December 2021
• 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		Teaching Assistant
• Main activities and responsibilities		Course: Gestione degli impianti industriali Activities: Assistance to lecturer

• Date (from – to)		June 2021 - 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		- Conducting research on Asset Administration Shell (AAS) potential within Industry 4.0. - Developed a software using python language that automatizes the process of AAS creation to make it accessible to students and non-IT people without the need for in depth IT skills. - Supported students in the Mindsphere Siemens context with technical information about the Industry 4.0 Lab production line. -Participation and Contribution to EU-funded projects: • CanvAAS (Connected Assets iNteroperability framework Via AAS): Validation of CanvAAS toolset at Industry 4.0 Lab with aims to focus on the development of an AAS model for all the assets present in the Laboratory with a special focus on the interoperability enabled by a common model. • Dimofac (Digital and Intelligent Modular Factories): Collaborate with partners for the deployment and testing of an intelligent digital twin for each production module and its integration with the physical module using the various available communication protocols.

• Date (from – to)		March 2020 – July 2020
• Name and address of firm/university		RIVOIRA S.p.A (Nippon Gases), Via Durini, 7, 20122 Milano, Italy
• Type of business or sector		Oil & Gas
• Type of employment		Intern in Lean Management Department
• Main activities and responsibilities		**Consultancy project with the following activities:** • Map current state of customer relationship management process, identifying bottlenecks, and unnecessary loops • Identify roles, responsibilities, and information flows among internal functions involved • Design a future state of customer relationship management process following lean principles where a reduction of lead time of 33% was achieved. • Digital transformation of the customer bidding process by introducing a dashboard to have the real-time view of ongoing project, and an evaluation system for critical stages.

• Date (from – to)		June 2017 – August 2017
• Name and address of firm/university		LEAP s.c.a r.l. (Laboratorio Energia Ambiente Piacenza), Via Nino Bixio, 27C, 29121 Piacenza PC, Italy
• Type of business or sector		Higher Education
• Type of employment		Research Assistant
• Main activities and responsibilities		Modelling and management of Energy Conversion Plants Internship under the supervision of Prof. Stefano Consonni. **Topic**: “Energy/Mass balances, modelling and management of Energy Conversion Plants” **Activities:** The purpose of the study was to determine and manage the biogenic content of waste feedstock and, consequently, biogenic CO2 in the flue gas of waste to energy plants in the Emilia

		Romagna region of Italy. **My contributions to the project:** • Learn to operate two softwares, BIOMA and Obama, which use the mass and energy balance approach • Create a methodology that simplifies the use of the two softwares • Train the LEAP team on following the methodology and using BIOMA and OBAMA for further studies.

Personal skills and competences

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

Mother tongue		**Arabic**

Other language(s)

		English
• reading		excellent
• writing		excellent
• speaking		excellent

		German
• reading		Good
• writing		Elementary
• speaking		Good

		Italian
• reading		Excellent
• writing		Good
• speaking		Good

Social skills and competences		- Coca-Cola Scholarship at the Kelley School of Business in Indiana University**, USA.** A month-long program where teams from different countries (**Morocco, Tunisia, Pakistan, India, Algeria, Egypt**) came together to learn about the fundamentals of business and entrepreneurship, accompanied with classes on business etiquette and introduction to politicians and businessmen at the chamber of commerce in Washington dc. - Renewable Energy Summer School at Bonn, **Germany**. A 12 day program made up of groups of **students from the middle east and Germany** to attend lectures and site visits on the latest developments in renewable energy within Germany. At the end of the program my presentation was about The Relationship Between Political Power and Energy.

Technical skills and competences *With computers, specific kinds of equipment, machinery, etc.*		- Engineering: Eagle circuits design software, Proteus circuit design software, Solidworks - Programming/Simulation: Python, MATlab, Simulink, Arduino. - Others: Minitab , Power BI, Office Suit

Additional information		Volunteer Work: - Participation in the UN women empowerment contest held by Enactus ZC - A member of the Green Engineering Club in Zewail City - The host of INCORE2016 (International Conference of Renewable Energy) - An organizer in the 4th International Conference on Mathematics & Information Science (ICMIS2015)

		- The host of 5th International Conference on Mathematics & Information Science (ICMIS 2016) - A member of ANSOLE (African Network for Solar Energy)

I authorize the processing of data pursuant to GDPR 2016/679 of 27 April 2016 (European Regulation concerning the protection of individuals with regard to the processing of personal data).

I authorize the publication of the Curriculum Vitae on the website of the Politecnico di Milano (Section Transparent Administration) in compliance with Legislative Decree no. 33 of March 14, 2013 and any subsequent amendments and additions.