



Alessandro MORABITO

Test Engineer

Experience

2021 - 2024 **Research Associate** EPFL, Switzerland

- Developed and led research portfolios, demonstrating proficiency in strategic planning and execution of experimental and numerical research projects.
- Led complex 3D CAD design and Computational Fluid Dynamics (CFD) analyses to simulate and understand intricate water-flow conditions, transients of Francis pump-turbine, cavitation, part-load operations and system performances.
- Developed analytical and numerical models to support feasibility analysis for hydropower plant operations with cross-functional engineering teams. Perform the monitoring of the operational parameters, constraints and risk identification.
- Implementation of hydraulic short-circuit (HSC) for pumped-storage power plants participating in the ancillary service market in a 210 MW hydropower plant.
- Partnered with machine learning team for innovative methods in fatigue prediction in mechanical components Pelton and Francis turbines.
- Redacted reports, wrote scientific papers, and experienced in funding applications.

2014 - 2021 **Mechanical Engineer & Industrial Consultant** ATM-ULB, Belgium

- Designed and delivered a first-of-its-kind micro-pumped hydro energy storage installation integrated into a SmartGrid – (Smart-Water prj)
- Managed technical-economic calculations to define the required investments for prosumers and examine new business cases to support the energy transition: the Belgian case – (EPOC 2030-2050 prj)
- Conducted performance and flexibility analysis to facilitate engagement in the electric grid balance of drinking water distributors. Evaluated Belgian potential and orchestrated technical implementation - FlexWATTer prj
- Engaged in the analysis and thermodynamics modelling of Compressed air energy storage (CAES) systems and thermal storage – (CAES-CET prj)
- Conduced thermo-fluid-dynamic analysis into a light helicopter air-intake supported by numerical 3D analysis – (ESPOSA prj)

2016 **Design Engineer Intern** Ensival-Moret, Belgium

Developed a numerical model specifically designed to assist in the well-informed selection of commercial centrifugal pumps for use in generating mode. This model incorporates both economic and technical considerations.

Education

Ph.D. in Engineering Sciences and Technology Université libre de Bruxelles, Belgium

- Research goals focused on alternative hydropower technologies. Thesis titled *Experimental and numerical analysis of a Pump as Turbine in micro Pumped Hydro Energy Storage*.
- Teaching assistant of M.Sc. courses of *Turbomachinery* and *Aircraft propulsion and gas turbine engine*. Supervised and guided master students in their thesis work.

M.Sc. in Science of Management Vrije Universiteit Brussel, Belgium

Developed a broad overview of all aspects of modern business management: financial and managerial accounting, supply chain, HR, business and corporate strategy, strategic marketing, corporate finance and investments. Thesis titled *Business Model For Energy Management Enterprises*

M.Sc. & B.Sc. in Energy Engineering Politecnico di Milano, Italy

Industrial engineering background, specializing in power generation and thermo-fluid dynamics.

Additional certified Training

- Deeply Practical Project Management, IFPPM, Online
- Sustainability and Corporate ESG | Practical Implementation, UFPR, Online
- Multi-objective optimization problems and algorithms, Udemy, Online
- Pumps Design, Performance and Problem Solving, NREC-concept, Germany
- Deepening in renewable energy technologies, ULPGC, Spain

About me

Experienced mechanical engineer with 9 years in applied energy research field. Seeking opportunities to apply interdisciplinary expertise to drive sustainable business development. Passionate about delivering innovative solutions to challenging engineering problems.

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Skills

CAD: CatiaV5, Solid Edge, Solid Works

Data Management: Office, L^AT_EX, MATLAB, Python

Simulation Software: ANSYS Fluent and Workbench, NUMECA Open/Turbo, SpaceClaim, ICEM, CFD-Post, Autogrid5, CFView

- IEC.60193 Knowledge
- Experimental and numerical analysis
- LCOE
- LCA
- Cost-benefit analysis
- Design Optimization
- Data synthesis & communication
- Teamwork
- Lean Project management
- Waterfall method

Languages

Invited Chairman and speaker at international conferences and seminars.

Italian Native speaker

English Highly proficient

French Professional proficient

Spanish Basic speaking

German Basic knowledge

Publications

Authorship and co-authorship in 10+ international journals. A detailed list is provided at [GScholar](#) or [in](#).