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My-page

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About me

Experienced energy engineer with over 9 years in hydropower and applied energy research. Passionate about leveraging interdisciplinary expertise to foster sustainable business growth.
Looking for a warm, collaborative work environment, where I can contribute, learn, and thrive

Skills

• CAD: CatiaV5, Solid Edge, Solid Works

• Data Management: Office, MS Project, LaTeX, MATLAB, Python

• Simulation Software: ANSYS Fluent and Workbench, NUMECA Open/Turbo

• CFD tools: SpaceClaim, ICEM, CFD-Post, Autogrid5, CFView

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

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

Alessandro MORABITO

Energy Engineer

Experience

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

• Led complex 3D CAD designs and CFD analyses to simulate and assess unsteady water flow and turbomachinery performance.
• Assessed hydroelectric plant operations with cross-functional teams, monitored operational parameters, identified constraints, and evaluated risks.
• Implemented Hydraulic Short-Circuit for a 210 MW pumped-storage plant participating in the ancillary service market.
• Partnered with a Machine Learning research team to predict fatigue phenomena in hydro-mechanical components during start-up sequences.
• Authored reports, scientific papers, and gained experience in applying for funding.

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

• Succeed in geometrical optimization of the pump cutwater design for reverse operation, leading to a new design and 3.9% gain in hydraulic efficiency.
• 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)
• Modeled the drinking water distribution network for energy flexibility and participation in the electric grid balance market. Evaluated Belgian potential and orchestrated technical implementation - (FlexWATTer prj)
• Engaged in the analysis and thermodynamics modeling of Compressed Air Energy Storage systems and thermal storage – (CAES-CET prj)
• Led 3D thermo-fluid analysis into a light helicopter air-intake – (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. To cite some: financial and managerial accounting, PM, supply chain, HR, business and corporate strategy, strategic marketing, corporate finance and investments.
Thesis titled *Business Model For Energy Management Enterprises*

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

Specializing in power generation and thermo-fluid dynamics. Thesis titled *Design method and optimization of Deriaz pump turbine for hydraulic energy storage*

Additional Training

• Sustainability and Corporate ESG | Practical Implementation, Prof. Eng. M.Oliveira, UFPR, Online
• Multi-objective optimization problems and algorithms, Udemy, Online
• Centrifugal and Axial Pumps Design, Performance and Problem Solving, NREC-concept, Germany
• Deepening in renewable energy technologies, ULPGC, Spain

Publications

Authorship and co-authorship in 10+ international journal and conference papers. A detailed list is provided at GScholar or in.