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About me

Experienced energy engineer with 9+ years in applied energy research. Seeking opportunities to apply interdisciplinary expertise to drive sustainable business development. Passionate about delivering innovative solutions to challenging engineering problems. My work spanned multiple projects ranging from TRL 2 to TRL 7.

Skills

• Problem solving • Data analysis • Experimental and numerical analysis • Cost-benefit analysis • LCOE • DOE • Design Optimization • Data synthesis & communication • Project management • Teamwork • Ability to communicate synthesized material • Knowledge in IEC.60193

• Data Management: Office, LaTeX, MATLAB, Python
• Experienced in Multivariate adaptive regression spline (MARS), Linear Programming (LP), Mixed-Integer Linear Programming (MILP), NonLinear Programming (NLP), Particle Swarm (PSO), Genetic Algorithm (GA)
• Simulation Software: ANSYS Fluent and Workbench, NUMECA Open/Turbo
• CAD: CatiaV5, Solid Edge, Solid Works

Languages

Italian	Native speaker
English	Highly proficient
French	Conversational proficient
Spanish	Basic speaking
German	Basic knowledge

Alessandro MORABITO

Energy Engineer & Data Analyst

Experience

Since 2021 **Research Associate** EPFL, Switzerland

• Develop analytical and numerical models to support the feasibility analysis for hydropower plant operations with cross-functional engineering teams. Perform the monitoring of the operational parameters, constraints and risk identification.
• Methodological analysis of hydraulic short-circuit (HSC) for pumped-storage power plants participating in the ancillary service market.
• Lead complex 3D CAD design and Computational Fluid Dynamics (CFD) analyses to simulate and understand intricate water-flow conditions and system performances.
• Partnered with machine learning team for the components fatigue prediction in hydropower generation.
• Develop and lead research portfolios, demonstrating proficiency in strategic planning and execution for experimental and numerical investigations.
• Redact reports, write scientific papers, and experience in applying for funding.

2014 - 2021 **Energy Engineer & Data Analyst** ATM-ULB, Belgium

• Engaged in the analysis and thermodynamics modelling of compressed air energy storage systems and thermal storage – (CAES-CET prj)
• Designed and delivered a first-of-its-kind micro-pumped hydro energy storage installation integrated into a SmartGrid – (Smart-Water prj)
• LCA study and estimation of the greenhouse gas emissions (GHG) for alternative hydropower solutions using underground cavities - (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)

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

2017 - 2021 **Ph.D. in Engineering Sciences and Technology** Université libre de Bruxelles, Belgium

• Research goals focused on alternative hydropower technologies.
• Organized and planned experimental and numerical tests, and design optimization.
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.

2018 - 2020 **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*

2011 - 2014 **M.Sc. in Energy Engineering** Politecnico di Milano, Italy

Specializing in power generation and thermofluid dynamics

Additional Certified Training

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

Publications

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