MORATO
Pablo G.

PhD Candidate at the University of Liège

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Keywords:	Optimal decision making, offshore wind structures, Markov decision processes, artificial intelligence, inspection planning, fatigue, structural reliability, Bayesian networks
Publications (ORCID, SCOPUS…)	https://www.researchgate.net/profile/Pablo_Morato https://orcid.org/0000-0002-2744-0650 Scopus Author ID: 57208143356 ORBi (Open Repository and Bibliography) www.linkedin.com/in/pablomorato

MISSION

FRIA Research Fellow - National Fund for Scientific Research (FNRS)

The aim of this PhD project is the development of a methodology for optimal inspection and maintenance planning of deteriorating structures. The methodology is specifically applied to the case of offshore wind substructures subjected to fatigue deterioration. The research is conducted in collaboration with the Pennsylvania State University (State College, USA) and Aalborg University (Aalborg, Denmark).

EDUCATIONAL BACKGROUND

Ph.D. Candidate

Université de Liège

March 2017 - Current

FRIA-FNRS Research Fellow.

Dissertation title: “Optimal Inspection and Maintenance Planning for Deteriorating Structures via Markov Decision Processes and Deep Reinforcement Learning. Application to Offshore Wind Substructures”

M.Sc. in Advanced Ship Design (EMship)

Université de Liège (Liège, Belgium) & École Centrale de Nantes (Nantes, France)

Sep 2015 - Feb 2017

Joint Master's Degree consisting in three stages:

- Master in Naval Architecture (Université de Liège)
- Master in Hydrodynamics, Energy and Propulsion (École Centrale de Nantes)
- Complementary Diploma in Offshore Structures (University of Rostock, Germany)

Key Subjects: Ship Theory, Seakeeping, Ship Structures, Experimental Ship Hydrodynamics, Ship Design, Multi-objective Optimisation for Ship Design.

Thesis title: "Dynamic Transversal Instabilities due to Coupled Pitch-Heave-Roll Motions on a High Speed Craft" Developed at the University of Michigan (USA) under the guidance of Prof. Armin Troesch. EMSHIP 2017 Thesis Award.

M.Sc. in Sustainable Engineering (Offshore Renewable Energy)

University of Strathclyde (Glasgow, UK)

Sep 2014 - Aug 2015

Group Project: "Technical and Economic Analysis for Far Offshore Wind Farm Accommodation". Supported by EDF. Link: http://www.esru.strath.ac.uk/EandE/Web_sites/14-15/Far_Offshore_Wind/

Key Subjects: Finite Element Analysis of Floating Structures, Electrical Power Systems, Energy Resources & Policies, Financial Management, Sustainability.

Thesis title: "Enhancement of Fishing Vessels for Offshore Operations". Supported by the Scottish Fishermen's Federation (SFF).

Bachelor of Engineering in Maritime Engineering

Polytechnic University of Madrid (Madrid, Spain)

Sep 2010 - Jul 2014

Key Subjects: Ship Stability, Electrical Engineering, Energy & Propulsion, Machinery, Maritime Transport and Legislation, Ship Hydrodynamics.

Thesis title: "*Dynamic Analysis of 100 kW Tidal Energy Converter*"

WORK EXPERIENCE

Research Intern

Naval Architecture and Marine Engineering Department, University of Michigan, Ann Arbor (USA)

Jul 2016 - Oct 2016

The research project consisted in the validation of an analytical model for the prediction of dynamic instabilities for high speed craft. The work was performed in three blocks: (1) computation of the hydrodynamic coefficients by means of CFD simulations; (2) computation of the ship's response in a dynamic fluid body interaction CFD simulation; and (3) comparison between the analytical and numerical models. For more information, visit https://matheo.uliege.be/handle/2268.2/4425.

MEMBERSHIPS

- Associate Member of The Royal Institution of Naval Architects (ARINA). Membership Number: 00376339.
- Member of The International Association for Life-Cycle Civil Engineering (IALCCE).
- Member of the International Ship and Offshore Structures Congress (ISSC). Committee V.4 “Offshore Renewable Energy”.
- Member of The European Energy Research Alliance (EERA). JPWind – Subprogramme 7 “Structures, materials and components”.

SKILLS

Languages

Spanish (Native), English (fluent), French (intermediate) and Chinese (basic).

Computer skills

Matlab & Simulink, Python, Sesam & Bladed (DNV-GL), ANSYS (FEA), Maxsurf (Bentley), LATEX, CAD/CAE (Autocad, Inventor), Rhinoceros, Star-CCM+ (CFD).

HONORS & AWARDS

- FRIA Research Scholarship EMShip Award 2017
- ULG Scholarship for master’s studies
- Strathclyde Enterprise Pathway
- Offshore Renewable Energy Britannia Scholarship
- Spanish Government Grant for University Studies