MÁRQUEZ DUQUE Lucas

PhD Candidate at University of Liège

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Keywords:	Offshore wind turbine, Structural dynamics, Collisions, Hydrodynamics

MISSION

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

This PhD project aims to develop and validate a fast and reliable collision analysis tool, specific for Floating Offshore Wind Turbines, based on analytical formulations derived from plastic limit analysis, coupled with a large rotational floating structure movement solver. This tool will allow design offices to assess, at a pre-design stage, the consequences of a collision in terms of ship and wind turbine damage.

EDUCATIONAL BACKGROUND

Ph.D. Candidate

Université de Liège

Apr 2019 - Current

FRIA-FNRS Research Fellow

Dissertation title: "*Crashworthiness of Concrete Structures of Floating Offshore Wind Turbines*"

M.Sc. in Advanced Ship Design (EMship)

Université de Liège & École Centrale de Nantes

Sep 2017 - Feb 2019

Joint Master 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 Composite Structures (Institut Catholique d'arts et métiers, ICAM Nantes)

Thesis title: "*Implementation of the Arbitrary Lagrangian Eulerian method in soft body impacts against composite plates*"

Bachelor in Aeronautical Engineering

Universidad Pontificia Bolivariana (UPB)

Ene 2011 - Apr 2016

Thesis title: "*Preliminary Design of a Solar Powered Aircraft for Long Endurance Missions*"

PUBLICATIONS

Conferences

- "*Arbitrary Lagrangian Eulerian Method to study gel projectile impacts against composites naval plates*". L. Márquez, H Le Sourne, J.C Petiteau. Composites 2019 Eccomas. Available at : http://composites2019.udg.edu/wp/wp-content/uploads/2019/09/proceeding-COMPOSITES-2019-V4.pdf

- " *Numerical Crashworthiness analysis of a spar floating offshore wind turbine impacted by a ship*". S.Echeverry, L.Márquez, P.Rigo, H Le Sourne. ICCGS 2019. Available at: https://orbi.uliege.be/handle/2268/241146

WORK EXPERIENCE

Master Student Intern

Meca-Calcul, France

Nov 2018 - Feb 2019 (4 months)

Numerical modeling and analysis of composite structures submitted to hydrodynamic impacts

Project Engineer

DYNACOMP, Colombia

May 2016 - Aug 2017 (1 Year 4 Months)

Responsible for project planning, budget calculation, R&D, design and implementation of composite materials manufacturing processes oriented to ship and ballistic protection industries.

MEMBERSHIPS

- Member of Society of Naval Architects and Marine Engineers SNAME (From 2020)
- Member of Royal Institution of Naval Architects RINA (From 2017)
- Member of Sociedad Antioqueña de Ingenieros y Arquitectos SAI (From 2015)

SKILLS

Languages

Spanish (Native), English (Fluent) and French (Intermediate).

Computer Skills

Non Linear Finite Element Analysis, Computational Fluid Dynamics, Computed Aided Design, Programing (Matlab and C++), Hydrodynamic analysis.