

## PERSONAL INFORMATION



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## POSITION

Postdoc @ Chalmers University of Technology

## EDUCATION

2015 – 2020

**PhD in Shipping and Marine Technology – Marine Environment**

Chalmers University of Technology, Gothenburg (SE)



CHALMERS

- As PhD student, I planned, conducted and analysed results from field testing of biocidal and non-biocidal fouling control coatings, as well as in-water maintenance strategies.
- I further developed methods in testing of biofouling adhesion strength and measurement of coating wear, efficacy against fouling, and leached layer characterization using SEM-EDX.
- Further, I evaluated hull and propeller performance of ocean-going vessels based on ISO standard 19030:2016, which I implemented in MATLAB.
- Implemented full-scale modelling of hull roughness penalties, e.g. propulsion power penalty versus speed, using Granville's similarity law scaling in MATLAB, and conducted numerical simulation of impinging jets for cleaning applications, in STAR-CCM+.
- Finally, I was responsible for direct communication with representatives from shipping companies (Ro-Ro; LR1 tankers), and kept collaboration with division of Marine Technology.
- Managed my own research and developed project management skills.
- Advanced courses in maritime economics, teaching course for PhD students, turbulence modelling, advanced communication, and technical writing.

2009 – 2015

**MSc Programme in Bioengineering (grade 18 in 0-20 scale)**

Faculty of Engineering at University of Porto (PT)



- During this 5-year program, I studied both engineering and life science topics, including fundamentals of chemistry, cellular and molecular biology, fluid mechanics, interface phenomena, analytical chemistry, thermodynamics, and numerical and statistical methods.
- Programming courses included MATLAB, Simulink, and introduction to C language.
- I was also introduced to microeconomics, entrepreneurship and innovation, as well as quality management systems.

## TEACHING AND PEDAGOGICAL EXPERIENCES

2017 – 2019

**Field trip on testing of antifouling strategies for SJM040 – Hållbar sjöfart ur ett miljöperspektiv, BSc students in the Master Mariner programme**

Chalmers University of Technology (SE)

- Assisted in preparing and executing field trips, including hands-on tutorials on efficacy and environmental impact of fouling control strategies.
- I played a major role in coating application, test rig setup in the field, and 1-to-2-day tutorials with the students. In the latter, I was responsible for roughness characterisation and hydrodynamic ship performance, including numerical examples for ocean-going vessels.
- I developed online data collection procedures for improved communication with the students and reduced workload.

- 2018 – 2019 **Supervision of BSc theses for Master Mariner programme and International Logistics programme (f.k.a. Shipping and Logistics).**  
Chalmers University of Technology (SE)
- Spring 2019: supervisor of a 2-student thesis on evaluation of ship hull performance after coating retrofit, for the BSc programme in Shipping and Logistics (MMSX15).
  - Spring 2018: supervisor of a 2-student thesis on the cost analysis of scrubber versus fuel switching options, for the Master Mariner BSc programme (MMSX10).
- 2018 **Supervision of MSc thesis for Erasmus exchange student, Universidad Carlos III (Madrid, Spain)**  
Chalmers University of Technology (SE)
- I co-supervised an exchange student in planning, execution and reporting of a Master thesis on valuation of ship hull biofouling waste for energy production – an economic feasibility study based on risk analysis using Monte Carlo Simulation in @RISK for Microsoft Excel.
- 2016 – 2019 **Classroom discussions (seminars) on sustainable shipping for SJO851 – *Towards Sustainable shipping* (f.k.a. SJO850) in MSc Maritime Management programme**  
Chalmers University of Technology (SE)
- Assisted in preparing and conducting classroom discussions on sustainability issues related to shipping, namely sustainable development, emissions to air, climate impact, biofouling, and energy efficiency.
  - Over these four years, I built confidence in both discussion-facilitation and lecturing.

TRAINING

- July 2016 **Dry-docking inspection on a Ro-Ro ship**  
Remontowa shipyard (Gdańsk, PL), Chalmers University of Technology (SE)
- I performed in-docking inspection of a 200-m RoRo vessel, using US Navy fouling rating.
  - Acted as external observer during anti-fouling paint application.
  - On out-docking, I conducted Mean Hull Roughness survey (TQC Hull Roughness Analyser).
  - I followed-up with in-water inspection, using an underwater camera.
- Business or sector** ship repairs and inspection.
- 2014 – 2015 **Research internship for MSc thesis dissertation**  
Empa – Swiss Federal Laboratories for Materials Science and Technology (St. Gallen, CH)
- In my Master's internship, I contributed with numerical simulation of transport phenomena in microclimates near the skin, which included laminar convection, turbulent flow, and heat transfer phenomena: conductive, convective, and radiative heat.
  - I received training in meshing, ANSYS Fluent and COMSOL Multiphysics.
- Business or sector** materials and simulation research.

PERSONAL SKILLS

Mother tongue Portuguese

Languages	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C1
Swedish	A2	A2	A2	A2	A2

Levels: A1/2: Basic user - B1/2: Independent user - C1/2 Proficient user  
Common European Framework of Reference for Languages

- Computer skills** - good working knowledge in MATLAB and Simulink;  
- good understanding and command of commercial CFD simulation tools, e.g. STAR-CCM+;  
- seamless command of Microsoft Office™ tools;  
- Monte Carlo Simulation in @RISK for Microsoft Excel.
- Driving license** Category B.

## LIST OF PUBLICATIONS

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Oliveira DR, Granhag L and Larsson L. 2020. *A novel indicator for ship hull and propeller performance: examples from two shipping segments*, Ocean Engineering (Impact Factor: 2.730 in 2018). 205:107229. <https://doi.org/10.1016/j.oceaneng.2020.107229>

Oliveira DR and Granhag L. 2020. *Ship hull in-water cleaning and its effects on fouling-control coatings*. Manuscript accepted for publication in Biofouling (Impact Factor: 2.847 in 2018). Manuscript available as **Paper IV** from PhD thesis: <https://chalmersuniversity.box.com/s/izdozngmosphunynyde6bt772iz5omzl>

Oliveira DR, Larsson L, Granhag L. 2019. *Towards an absolute scale for adhesion strength of ship hull microfouling*. Biofouling. 35:244–258. <https://doi.org/10.1080/08927014.2019.1595602>

Oliveira DR, Larsson AI, Granhag L. 2018. *Effect of ship hull form on the resistance penalty from biofouling*. Biofouling. 34:262–272. <https://doi.org/10.1080/08927014.2018.1434157>

Santos MS, Oliveira DR, Campos JBLM, Mayor TS. 2018. *Numerical analysis of the flow and heat transfer in cylindrical clothing microclimates – Influence of the microclimate thickness ratio*. Int J Heat Mass Transf. 117:71–79. <https://doi.org/10.1016/j.ijheatmasstransfer.2017.09.102>

Oliveira DR and Granhag L. 2016. *Matching forces applied in underwater hull cleaning with adhesion strength of marine organisms*. Journal of Marine Science and Engineering. 4(4):66–78. <https://doi.org/10.3390/jmse4040066> (Special Issue, 18th ICMCF 2016 – Toulon)

### Conference proceedings:

Oliveira D and Granhag L. 2016. *Future Work on Drag and Boundary Layer Properties of Biofouling Collected from Commercial Vessels*. 1st Hull Performance & Insight Conference HullPIC'16.

Oliveira D, Granhag L and Larsson L. 2018. *Performance Values vs. Speed – A Declaration of Independence?* 3rd Hull Performance & Insight Conference HullPIC'18.

### Thesis reports:

Oliveira DSR. 2019. *Roughest hour – approaches to ship hull fouling management*. PhD thesis. Chalmers University of Technology. Available from: [https://research.chalmers.se/publication/514200/file/514200\\_Fulltext.pdf](https://research.chalmers.se/publication/514200/file/514200_Fulltext.pdf)

Oliveira DSR. 2015. *Numerical simulation on the transport phenomena in microclimates near the skin*. MSc thesis. Faculty of Engineering University of Porto. Available from: <https://repositorio-aberto.up.pt/bitstream/10216/88142/2/34346.pdf>