

MARIN LAUBER

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Born 28th August 1994 ◊ Swiss

Waterloostraat 115B-01 ◊ 3062TJ Rotterdam

EXPERIENCE

Post-doctoral researcher at TU Delft

Technische Universiteit Delft

February 2023 - September 2024

Delft, Netherlands

· Post-doctoral researcher within the Ship Hydromechanics research group, working on fluid-structure interaction of thin membranes and shells applied to sail-assisted propulsion.

Head of the lab: Prof. Gabriel D. Weymouth

EDUCATION

PhD in Next Generation Computational Modelling

University of Southampton

September 2018 - February 2023

Southampton, UK

Thesis: Computational Fluid-Structure Interaction of Membranes and Shells with application to Bat Flight

Taught Year: Lectures in Simulation and Modelling, Numerical Methods, Statistical Analysis, Computational Methods, Advanced Finite-Element Analysis, Partial Differential Equations, Integral Transform Methods.

Experience Gained: Development of a finite-volume (LES) Cartesian grid fluid flow solver (Fortran) to simulate thin flexible sheets/membrane in an unsteady flow. Coupling of the finite-volume code to a finite-element solver (CalculiX) through the preCICE library to simulate weak and strongly coupled fluid structure interaction problems.

MSc in Maritime Computational Fluid Dynamics

University of Southampton

September 2017 - September 2018

Southampton, UK

Thesis: Acquisition of Manoeuvring Characteristics of Ships using RANS CFD

Overall grade: *First Class*

Lectures in: Turbulence, Computational Fluid Dynamics, Aeroelasticity, Ship Resistance and Propulsion, Finite-Element Analysis, Hydrodynamics, Fluid-Structures Interactions.

Experience Gained: Performing static drift and planar motion mechanism simulation of ship manoeuvring using a commercial CFD package (Star-CCM) using overset meshes.

BEng in Yacht & Powercraft Design

Southampton Solent University

September 2014 - September 2017

Southampton, UK

Final Year Project: Preliminary Design of a Mini 6.50 with a Foil CFD Investigation

Award: The 2017 RINA - BAE Systems Student Naval Architect Award - Final Year Project

Overall grade: *First Class with Honours*

Experience Gained: Computational fluid dynamic and towing tank analysis of the resistance of a foil assisted Mini 6.50. Collaboration with Hydros.ch (Dr Yves Courvoisier) for the VPP.

Certificat de Maturité Gymnasiale

Gymnase de Morges

August 2010 - September 2014

Morges, Switzerland

Option: Physics & Applied Mathematics

Complementary Option: Economy

Overall grade: 4.1/6

SKILLS

Languages	French (native), English (proficient user), German (independent user)
Programming	Python, Fortran (OpenMP, MPI), C, Matlab
Modelling	Autocad, Rhinoceros 5, Maxsurf (modeller, stability, seakeeping, structure), Solidworks
CFD	Star-CCM, Ansys Fluent, Ansys CFX, OpenFOAM
FEA	CalculiX, ABAQUS, Ansys APDL
Experimental	Towing Tank (resistance, seakeeping)
Other	HullScant (ISO 12215), WinDesign (VPP)

ADDITIONAL INFORMATIONS

Interests	Sailing, kitesurfing, skiing
Driving Licence	A1, B , Sailing & motor yachts (Swiss)

PUBLICATIONS

First-author peer-reviewed articles

- Lauber M., Weymouth G.D., Limbert G., *Immersed Boundary Simulations of Flows Driven by Moving Thin Membranes*, Journal of Computational Physics (2022), <https://doi.org/10.1016/j.jcp.2022.111076>

Conferences

- Lauber M., Weymouth G.D. (2020) *Improving Pressure Simulations Driven by Immersed Dynamic Surfaces*. 73rd Annual Meeting of the APS Division of Fluid Dynamics, Chicago, USA.
- Lauber M., *Flexible sheets in Turbulent flow*, UK Fluid 2021, Southampton, UK
- Lauber M., Weymouth G.D., Limbert G., *Development and application of an immersed boundary fluid-membrane interaction solver*. DiCoVor 2022, Villars-sur-Ollon, Switzerland.

REFERENCES

Dr Gabriel D. Weymouth

PhD advisor

- Professor of Ship Hydromechanics at the Delft University of Technology
- contact: g.d.weymouth@soton.ac.uk

Dr Georges Limbert

PhD advisor

- Professor of Computational Mechanics at the University of Southampton
- contact: g.limbert@soton.ac.uk