
Professional Experience

- 2023- **Postdoctoral research associate**, *New York University (NYU)*, New York, USA.
Modeling and numerical simulation of sea ice dynamics. I am developing numerical methods for inferring continuum models for sea ice from data generated with the discrete element method Subzero. Part of the Sea Ice MURI project ([project website](#)).
- supervisor Prof. Georg Stadler.
- 2017-2018 **Research Assistant**, *University Duisburg-Essen*, Essen, Germany.
Research into (i) least-squares finite element methods for linear elasticity and hyperelasticity and (ii) the Scaled Boundary Finite Element Method (SBFEM) at the Numerical Mathematics group of the Faculty of Mathematics.
- 2015-2016 **Internship**, *Energy research Centre of the Netherlands (ECN)*, Alkmaar, The Netherlands.
Computational and experimental analysis of aeroelastic instabilities of wind turbine blades.
- 2014 **Internship**, *National Institute for Aerospace Technology (INTA)*, Madrid, Spain.
Study of the wake formed over the landing deck of a scaled model of a frigate using Laser Doppler Anemometry (LDA).

Education

- 2019-2023 **PhD in Applied Mathematics**, *University of Oxford*.
DPhil in Mathematics (4 year programme).
- thesis *Viscous contact problems in glaciology* ([link to thesis](#)).
- supervisors Prof. Ian Hewitt and Prof. Patrick Farrell.
- date of viva 4th September 2023
- 2018-2019 **Master of Science**, *University of Oxford*, *Distinction*.
MSc in Mathematical Sciences.
- courses Functional Analysis, Functional Analytic Methods in PDEs, Differentiable Manifolds, Fixed Point Methods for Nonlinear PDEs, Finite Element Methods for PDEs, Lie Groups.
- thesis *Semiuniform stability of C_0 -semigroups*.
- supervisor Dr. David Seifert.
- 2014-2017 **Master of science**, *Delft University of Technology*, *8.75/10 Cum Laude*.
MSc in Aerospace Engineering, Aerodynamics and Wind Energy.
- thesis *A physics-compatible solver for turbidity currents*.
- supervisors Dr.ir. M.I. Gerritsma, Dr.ir. A. Palha.
- 2010-2014 **Bachelor of Science**, *Universidad Politécnica de Madrid*, *8.04/10*.
BSc in Aerospace Engineering, specialisation in Aerospace Science and Technologies.

Publications

- [9] *Learning parameter-dependent shear viscosity from data, with application to sea and land ice*, G.G. de Diego, G. Stadler. *Journal of Computational Physics*. Volume 561 (2026) [Publisher](#).

- [8] *Non-Newtonian viscous fluid models with learned rheology accurately reproduce Lagrangian sea ice simulations*, G.G. de Diego, G. Stadler. *Physical Review Fluids*. Volume 11 (1) (2026) [Publisher](#).
- [7] *Numerical simulation of glacier terminus evolution using the dual action principle for momentum balance*, D. Shapero, G.G. de Diego. *Journal of Glaciology*. Volume 71, e14 (2025) [Publisher](#).
- [6] *Modeling sea ice in the marginal ice zone as a dense granular flow with rheology inferred from a discrete element model*, G.G. de Diego, M. Gupta, S.A. Gering, R. Haris, G. Stadler. *Journal of Fluid Mechanics*. Volume 1000, page A22. (2024) [Publisher](#).
- [5] *On the finite element approximation of a semicoercive Stokes variational inequality arising in glaciology*, G.G. de Diego, P.E. Farrell, I.J. Hewitt. *SIAM Journal of Numerical Analysis*. Volume 61 (1), 1-25 (2023) [Publisher](#).
- [4] *Numerical approximation of viscous contact problems applied to glacial sliding*, G.G. de Diego, P.E. Farrell, I.J. Hewitt. *Journal of Fluid Mechanics*, Volume 938, A21 (2022) [Publisher](#).
- [3] *Convergence analysis of the scaled boundary finite element method for the Laplace equation*, F. Bertrand, D. Boffi, G.G. de Diego. *Advances in Computational Mathematics*, Volume 47, no. 34 (2021) [Publisher](#).
- [2] *Inclusion of no-slip boundary conditions in the MEEVC scheme*, G.G. de Diego, A. Palha, M. Gerritsma. *Journal of Computational Physics*, Volume 378, pp. 615-633 (2019) [Publisher](#).
- [1] *A spectral analysis of laser Doppler anemometry turbulent flow measurements in a ship air wake*, R. Bardera-Mora, M.A. Barcala-Montejano, A. Rodriguez-Sevillano, G. Gonzalez de Diego, M. Ruiz de Sotro. *Proceedings of the Institution of Mechanical Engineers, Part G: Journal of Aerospace Engineering*, Vol. 229 (12), pp. 2309-2320 (2015) [Publisher](#).

Academic events

Invited talks

- 2025 *Inferring a rheology for sea ice from data generated with a Discrete Element Method*, Modeling and computation, University of Arizona.
- 2025 *Viscous contact problems in glaciology*, Glaciological seminar, ETH Zurich.
- 2024 *A Numerical Method for Solving the Stokes Contact Problem Arising in Marine Ice Sheet Dynamics*, FEM@LLNL, Lawrence Livermore National Laboratory.
- 2023 *Numerical approximation of viscous contact problems in glaciology.*, (invited) AGU23, San Francisco
- 2022 *A numerical exploration of glacier sliding with cavitation*, Maths on Ice seminar, online
- 2022 *Numerical approximation of viscous contact problems in glaciology*, MPE seminar, Imperial College London
- 2021 *Convergence analysis of the scaled boundary finite element method for the Laplace equation*, SACS seminar, University of Twente.

Conferences

- 2025 Minisymposium co-organizer for *Inference of Constitutive Relations from Micro-scale Simulation or Observational Data*, SIAM CSE25, USA.
- 2022 Minisymposium co-organizer for *Nonlinear Viscous Flow: Numerical Methods and Applications*, SIAM AN22, USA.

Teaching and supervision experience

- 2025 **Lecturer for MATH-UA 263 Partial Differential Equations.** *New York University.*
- 2024 **Supervision of undergraduate summer projects.** Supervision of Zhenyu Hong (NYU) and Shiyuan Li (University of Oxford) on the numerical analysis projects for ice sheet dynamics.
- 2019-2023 **C6.4 Finite Element Method for PDEs, B6.1 Numerical Solution of Differential Equations I and Prelims Analysis I - III** *University of Oxford* (Tutor and Teaching Assistant).
- 2017-2018 **Introduction to Numerical Methods (INM),** *University Duisburg-Essen*, MSc in Computational Mechanics (with Prof. Dr. Gerhard Starke).
- 2016 **Ethics and Engineering,** *Delft Technical University*, MSc in Aerospace Engineering (Teaching Assistant).

Participation of peer-revision of scientific articles

I have provided revisions of scientific articles in the following journals: The Journal of Glaciology, The Cryosphere, Numerical Algorithms, ESAIM: Mathematical Modelling and Numerical Analysis, and Computers and Mathematics with Applications.

Awards and grants

- 2025 Marie-Curie postdoctoral fellowship, to start in summer 2026 in UPM Madrid.
- 2023 SIAM Travel Grant for SIAM CSE23 (600\$).
- 2022 SIAM Travel Grant for SIAM AN22 (800\$).
- 2022 Best student presentation in the IGS Symposium ISS Bilbao.
- 2019 Mathematical Institute award of the University of Oxford. Full four-year scholarship for PhD studies.