

## CURRENT AND PAST POSITIONS

- 11/2020 – present    Research scientist (CR). Team RAPSODI, **Inria, Université de Lille** (France)  
 11/2019 – 10/2020    FMJH/LMH Postdoctoral research fellow. **LMO, Université Paris-Sud** (France)  
 11/2017 – 10/2019    Postdoctoral research fellow. Team MOKAPLAN, **Inria Paris** (France)  
 02/2014 – 11/2017    Ph.D. Applied Mathematics. **Imperial College London** (UK)

## SELECTED PUBLICATIONS

- [1] T.O. Gallouët, G. Todeschi, A. Natale. From geodesic extrapolation to a variational BDF2 scheme for Wasserstein gradient flows. *Mathematics of Computation*, 2024.
- [2] E. Facca, G. Todeschi, A. Natale, M. Benzi. Efficient preconditioners for solving dynamical optimal transport via interior point methods *SIAM Journal on Scientific Computing* 46 (3), A1397-A1422, 2024.
- [3] T.O. Gallouët, Q. Mérigot, A. Natale. Convergence of a Lagrangian discretization for barotropic fluids and porous media flow. *SIAM Journal of Mathematical Analysis* 54(3) :2990-3018, 2022.
- [4] A. Natale, G. Todeschi. Computation of Optimal Transport with finite volumes. *ESAIM : M2AN*, 55(5) :1847-1871, 2021.
- [5] T.O. Gallouët, A. Natale, and F.-X. Vialard. Generalized Compressible Flows and Solutions of the  $H(\text{div})$  Geodesic Problem. *Archive for Rational Mechanics and Analysis*. 235(3) :1707-1762, 2020.

## SELECTED TALKS

- 02/2024    *Oberwolfach Workshop Applications of Optimal Transport*. Oberwolfach (Germany).  
 09/2023    *ENUMATH 2023*. Lisbon (Portugal).  
 02/2021    *Oberwolfach Workshop Applications of Optimal Transportation in the Natural Sciences* (online meeting). Oberwolfach (Germany).

## GRANTS

Project IMPT (Institut des Mathématiques pour la Planète Terre, CNRS) : *Calibration of epidemic models on graphs with optimal transport* (from 01/11/2023 to 31/10/2024). Funding : 55k€.

## TEACHING AND SUPERVISION EXPERIENCE

I gave courses/practical sessions in different institutions (TU Delft, Imperial College London, Univ. Paris-Dauphine, Univ. Paris-Sud, Univ. de Lille) at Bachelor/Master level. I am currently responsible for the course “Résolution numérique de problèmes non-linéaires” (M1) at Université de Lille.

- 10/2023 – present    Supervision of Clément Sarrazin (IMPT Postdoctoral fellow). **Inria Lille** (France)  
                             *Project* : Calibration of epidemic models on graphs with optimal transport  
 01/2024 – 03/2024    Supervision of Alonso Salvador Carrasco Urbina (Master internship) **Inria Lille** (France)  
                             *Project* : Numerical methods for the extrapolation in the Wasserstein Space  
 04/2023 – 09/2023    Co-supervision of Sam Dossin (M2 internship) **Inria Lille** (France)  
                             *Project* : Design of a mathematical model of infection by arboviruses  
 10/2022 – 04/2023    Co-supervision of Thomas Gaviard (M1 internship) **Univ. Lille** (France)  
                             *Project* : Voronoi models of interacting cells and their continuous limits  
 10/2021 – 03/2023    Supervision of Enrico Facca (Inria Postdoctoral fellow). **Inria Lille** (France)  
                             *Project* : Discretizations of dynamical transport models on unstructured meshes  
 05/2021 – 07/2021    Supervision of Joël Drappier (M1 internship). **Inria Lille** (France)  
                             *Project* : Discrétisations de jeux à champs moyen variationnels

## COLLECTIVE RESPONSABILITIES AND ORGANIZATION ACTIVITIES

Reviewer for several journals including : Journal of Scientific Computing, Archive for Rational Mechanics and Analysis, Mathematics of Computation, and Physics of Fluids. Co-organizer of the conference *Calculus of Variations in Lille 3rd and 4th edition* (07/2022 and 06/2024), and of three conferences of the Imperial SIAM student chapter (2014-2017).