

Curriculum Vitæ

Victor Michel-Dansac

Contact

Professional address	Institut de Recherche Mathématique Avancée 7 Rue René Descartes 67000 Strasbourg, France
Phone	☎ +33 3 68 85 00 99
Email address	✉ victor.michel-dansac@inria.fr
Homepage	🏠 https://http://irma.math.unistra.fr/~micheldansac/index_en.html

Research areas (keywords)

Scientific computing; mathematical modeling; development of finite volume schemes; well-balanced schemes; asymptotic preserving schemes; high-order schemes in space and time; hyperbolic systems; shallow-water equations; scientific machine learning.

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Personal details

Name	Victor Michel-Dansac
Date of birth	27th December 1991
Place of birth	Saint-Nazaire (Loire-Atlantique, France)
Nationality	French

Contact

Address	Institut de Recherche Mathématique Avancée
Phone number	7 Rue René Descartes
Email address	67000 Strasbourg, France
Homepage	 +33 3 68 85 00 99  victor.michel-dansac@inria.fr  https://http://irma.math.unistra.fr/~micheldansac/

Current employment: ISFP at Inria (09/2020 – now)

Project-team	TONUS (TOkamaks and NUmerical Simulations),
Institution	Inria Nancy-Grand Est Research Centre Institut de Recherche Mathématique Avancée, Strasbourg

Post-doctoral researcher (09/2017 – 08/2020)

Institution	Institut de Mathématiques de Toulouse, INSA Toulouse
Supervisors	Pascal NOBLE and Jean-Paul VILA

Post-doctoral researcher (10/2016 – 08/2017)

Institution	Institut de Mathématiques de Toulouse, Université Paul Sabatier
Supervisors	Raphaël LOUBÈRE and Marie-Hélène VIGNAL

PhD studies (10/2013 – 09/2016)

Advisors	Christophe BERTHON and Françoise FOUCHER
Institution	Laboratoire de Mathématiques Jean Leray (LMJL), Université de Nantes
Thesis title	Development of high-order well-balanced schemes for geophysical flows

Education

2012 – 2013	Master's degree in Mathematical Engineering (second year), Université de Nantes 04/2013 – 09/2013: Internship supervised by Matthieu DE LEFFE, HydrOcean, Nantes – Study of the kernel smoothing length in the SPH (Smoothed Particle Hydrodynamics) particle method
2011 – 2012	Master's degree in Pure and Applied Mathematics (first year), Université de Nantes
2010 – 2011	Bachelor's degree in Mathematics, Université de Caen Basse-Normandie
2007 – 2010	Classes Préparatoires aux Grandes Écoles, Lycée Saint-Stanislas, Nantes

1 Publications list

Submitted articles are available on my homepage:

 https://http://irma.math.unistra.fr/~micheldansac/recherche_publis_en.html

Preprints

- ★ E. Franck, V. Michel-Dansac, L. Navoret, and V. Vigon. **Neural semi-Lagrangian method for high-dimensional advection-diffusion problems** (2025). arXiv: [2504.20715 \[math.NA\]](#)
- ★ H. Barucq, M. Duprez, F. Faucher, E. Franck, F. Lecourtier, V. Lleras, V. Michel-Dansac, and N. Victorion. **Enriching continuous Lagrange finite element approximation spaces using neural networks** (2025). arXiv: [2502.04947 \[math.NA\]](#)
- ★ S. Clain, E. Franck, and V. Michel-Dansac. **Structural schemes for Hamiltonian systems** (2025). arXiv: [2501.13515 \[math.NA\]](#)
- ★ V. Michel-Dansac and A. Thomann. **Towards a fully well-balanced and entropy-stable scheme for the Euler equations with gravity: General equations of state**. 2025. arXiv: [2410.19710 \[math.NA\]](#)

Articles published in peer-reviewed international journals

15. C. Berthon, V. Michel-Dansac, and A. Thomann. **Towards a fully well-balanced and entropy-stable scheme for the Euler equations with gravity: Preserving isentropic steady solutions**. *Math. Comput.* (2025). arXiv: [2406.15051 \[math.NA\]](#)
14. M. Ciallella, L. Micalizzi, V. Michel-Dansac, Ph. Öffner, and D. Torlo. **A high-order, fully well-balanced, unconditionally positivity-preserving finite volume framework for flood simulations**. *GEM - Int. J. Geomath.* 16.6 (2025). arXiv: [2402.12248 \[math.NA\]](#)
13. A. Bélières-Frendo, E. Franck, V. Michel-Dansac, and Y. Privat. **Volume-Preserving Geometric Shape Optimization of Dirichlet Energy Using Variational Neural Networks**. *Neural Networks* 184 (2025), p. 106957. arXiv: [2407.19064 \[math.OG\]](#)
12. J. Aghili, E. Franck, R. Hild, V. Michel-Dansac, and V. Vigon. **Accelerating the convergence of Newton's method for nonlinear elliptic PDEs using Fourier neural operators**. *Commun. Nonlinear Sci.* 140.2 (2025), p. 108434. arXiv: [2403.03021 \[math.NA\]](#)
11. E. Franck, V. Michel-Dansac, and L. Navoret. **Approximately well-balanced Discontinuous Galerkin methods using bases enriched with Physics-Informed Neural Networks**. *J. Comput. Phys.* 512 (2024), p. 113144. arXiv: [2310.14754 \[math.NA\]](#)
10. C. Berthon and V. Michel-Dansac. **A fully well-balanced hydrodynamic reconstruction**. *J. Numer. Math.* 32.3 (2024), pp. 275–299. arXiv: [2501.03975 \[math.NA\]](#)
9. P. Gerhard, Ph. Helluy, V. Michel-Dansac, and B. Weber. **Parallel Kinetic Schemes for Conservation Laws, with Large Time Steps**. *J. Sci. Comput.* 99.1 (2024). arXiv: [2212.11010 \[math.NA\]](#)
8. V. Michel-Dansac and A. Thomann. **TVD-MOOD schemes based on implicit-explicit time integration**. *Appl. Math. Comput.* 433 (2022), p. 127397. arXiv: [2501.03994 \[math.NA\]](#)
7. C. Berthon, S. Bulteau, F. Foucher, M. M'Baye, and V. Michel-Dansac. **A Very Easy High-Order Well-Balanced Reconstruction for Hyperbolic Systems with Source Terms**. *SIAM J. Sci. Comput.*

44.4 (2022), A2506–A2535

6. P. Gerhard, Ph. Helluy, and V. Michel-Dansac. **Unconditionally stable and parallel Discontinuous Galerkin solver**. *Comput. Math. Appl.* 112 (2022), pp. 116–137
5. V. Michel-Dansac, C. Berthon, S. Clain, and F. Foucher. **A two-dimensional high-order well-balanced scheme for the shallow water equations with topography and Manning friction**. *Comput. & Fluids* 230 (2021), p. 105152
4. V. Michel-Dansac, P. Noble, and J.-P. Vila. **Consistent section-averaged shallow water equations with bottom friction**. *Eur. J. Mech. B. Fluids* 86 (2021), pp. 123–149
3. G. Dimarco, R. Loubère, V. Michel-Dansac, and M.-H. Vignal. **Second-order implicit-explicit total variation diminishing schemes for the Euler system in the low Mach regime**. *J. Comput. Phys.* 372 (2018), pp. 178–201. arXiv: [1710.07602](https://arxiv.org/abs/1710.07602) [math.NA]
2. V. Michel-Dansac, C. Berthon, S. Clain, and F. Foucher. **A well-balanced scheme for the shallow-water equations with topography or Manning friction**. *J. Comput. Phys.* 335 (2017), pp. 115–154
1. V. Michel-Dansac, C. Berthon, S. Clain, and F. Foucher. **A well-balanced scheme for the shallow-water equations with topography**. *Comput. Math. Appl.* 72.3 (2016), pp. 568–593

Short communications published in peer-reviewed international journals

- ★ C. Berthon and V. Michel-Dansac. **A simple fully well-balanced and entropy preserving scheme for the shallow-water equations**. *Appl. Math. Lett.* 86 (2018), pp. 284–290

Edition of conference proceedings

- b. E. Franck, J. Fuhrmann, V. Michel-Dansac, and L. Navoret, eds. **Finite Volumes for Complex Applications X — Volume 1, Elliptic and Parabolic Problems, Invited Contributions: FVCA10, Strasbourg, France, October 30, 2023–November 03, 2023**. Springer Nature Switzerland, 2023
- a. E. Franck, J. Fuhrmann, V. Michel-Dansac, and L. Navoret, eds. **Finite Volumes for Complex Applications X — Volume 2, Hyperbolic and Related Problems: FVCA10, Strasbourg, France, October 30, 2023–November 03, 2023**. Springer Nature Switzerland, 2023

Peer-reviewed conference papers

- d. C. Fiorini, C. Flint, L. Fostier, E. Franck, R. Hashemi, V. Michel-Dansac, and W. Tenachi. **Generalizing the SINDy approach with nested neural networks**. *ESAIM Proc. Surv.* (2025). arXiv: [2404.15742](https://arxiv.org/abs/2404.15742) [math.NA]
- c. V. Michel-Dansac and A. Thomann. **On High-Precision L^∞ -stable IMEX Schemes for Scalar Hyperbolic Multi-scale Equations**. *Recent Advances in Numerical Methods for Hyperbolic PDE Systems*. Vol. 28. SEMA SIMAI Springer Series. Springer, Cham, 2021, pp. 79–94
- b. C. Berthon, R. Loubère, and V. Michel-Dansac. **A Second-Order Well-Balanced Scheme for the Shallow Water Equations with Topography**. *Theory, Numerics and Applications of Hyperbolic Problems I*. Springer International Publishing, 2018, pp. 165–177
- a. C. Berthon, M. de Leffe, and V. Michel-Dansac. **A conservative well-balanced hybrid SPH scheme for the shallow-water model**. *Finite volumes for complex applications. VII. Elliptic, parabolic and hyperbolic*

PhD thesis

V. Michel-Dansac. **Development of high-order well-balanced schemes for geophysical flows**. Thèse de doctorat. Université de Nantes, Faculté des sciences et des techniques, 2016

2 Research activities

The slides of my talks, as well as my posters, are available on my homepage:

 https://http://irma.math.unistra.fr/~micheldansac/recherche_comm_en.html

2.1 Organization de scientific events

2.1.1 International congresses

SciML 2024	Strasbourg, France, July 8 – 12 2024	(website)
CEMRACS 2023	CIRM, Marseille, France, July 21 – August 25 2023	(website)
FVCA 10	Strasbourg, France, October 30 - November 03 2023	(website)

2.1.2 Other events

mini-symposium	at the ECCOMAS 2022 congress in Oslo, Norway, 6–9 June 2022 “Well-balanced schemes for hyperbolic systems with source terms”
PDE seminar	Strasbourg, France, since September 2021 (website) with Joubine Aghili and Clémentine Courtès

2.2 Talks and posters in international conferences

02/2025:	DTE & AICOMAS 2025 , Paris, France <i>Approximately well-balanced Discontinuous Galerkin methods using bases enriched with PINNs</i>
01/2025:	Scientific Machine Learning: error control and analysis , Besançon, France (invited) <i>Neural and hybrid methods for elliptic and hyperbolic PDEs</i>
09/2024:	SPP-2410 Young Scientists Retreat , Hirschegg, Austria (invited) <i>Neural and hybrid methods for elliptic and hyperbolic PDEs</i>
04/2024:	CoMinDS Workshop , Delft, the Netherlands <i>Approximately well-balanced Discontinuous Galerkin methods using bases enriched with PINNs</i>
03/2024:	ALGORITMY 2024 , High Tatra Mountains, Slovakia <i>CFL-less and parallel kinetic relaxation schemes for systems of balance laws; application to electromagnetism</i>
03/2024:	Machine Learning for Fluid Dynamics , Paris, France <i>Approximately well-balanced Discontinuous Galerkin methods using bases enriched with PINNs</i>

- 12/2023: **AIAE'23**, Orsay, France
Approximately well-balanced Discontinuous Galerkin methods using bases enriched with PINNs
- 10/2023: **ICAMM 2023**, Indore, Madhya Pradesh, India (remotely, invited)
CFL-less and parallel Discontinuous Galerkin solver
- 09/2023: **IDESSAI 2023**, Sophia-Antipolis, France (invited)
Numerical schemes for hyperbolic equations enhanced by Scientific Machine Learning
- 06/2023: **NumHyp 2023**, Bordeaux, France
A fully well-balanced hydrodynamic reconstruction
- 06/2022: **HYP 2022**, Málaga, Spain
A very easy high-order well-balanced reconstruction for hyperbolic systems with source terms
- 02/2020: **32nd CEA/GAMNI seminar on computational fluid dynamics**, Paris, France (invited)
Consistent section-averaged shallow water equations with bottom friction
- 06/2019: **NumHyp2019**, Málaga, Spain
Second order Implicit-Explicit Total Variation Diminishing schemes for the Euler system in the low Mach regime
- 04/2018: **NumAsp Workshop**, Ferrara, Italia
Second order Implicit-Explicit Total Variation Diminishing schemes for the Euler system in the low Mach regime
- 05/2017: **SHARK-FV 2017**, Ofir, Portugal
Asymptotically accurate high-order space and time schemes for the Euler system in the low Mach regime
- 08/2016: **HYP2016**, Aachen, Germany
A well-balanced scheme for the shallow-water equations with topography and friction
- 05/2016: **SHARK-FV 2016**, São Félix, Portugal
A well-balanced scheme for the shallow-water equations with topography and friction
- 08/2015: **ICIAM 8**, Beijing, China
A well-balanced scheme for the shallow-water equations with topography and bottom friction
- 06/2014: **Finite Volumes for Complex Applications – FVCA VII**, Berlin, Germany
A conservative well-balanced hybrid SPH scheme for the shallow-water model

2.3 Talks and posters in French workshops and seminars

- 04/2025: **Groupe de travail "applications des mathématiques"**, Rennes, France
Approximation of PDE solutions with nonlinear parametric models
- 02/2025: **Séminaire de l'équipe EDPs²**, Chambéry, France
Hybrid methods for elliptic and hyperbolic PDEs
- 12/2024: **Workshop MEDIA**, Toulon, France (invited)
Hybrid methods for elliptic and hyperbolic PDEs
- 11/2024: **École du Réseau Thématique "Terre et Énergies"**, Nouan-le-Fuzelier, France (invited)
Hybrid methods for elliptic and hyperbolic PDEs

- 05/2024: **Séminaire Modélisation, Optimisation, Dynamique**, Limoges, France
Approximately well-balanced Discontinuous Galerkin methods using bases enriched with PINNs
- 05/2024: **Séminaire de Calcul Scientifique et Modélisation**, Bordeaux, France
Recent advances on fully well-balanced methods
- 03/2024: **Journées thématiques MIRES : réseaux de neurones et applications**, Poitiers, France (invited)
Approximately well-balanced Discontinuous Galerkin methods using bases enriched with PINNs
- 02/2024: **Séminaire de l'équipe ATLANTIS**, Sophia-Antipolis, France
CFL-less and parallel kinetic relaxation schemes for systems of balance laws; application to electromagnetism
- 11/2023: **Journée d'intégration Inria**, Strasbourg, France
Well-balancing through Scientific Machine Learning
- 04/2023: **Conférence JPV66**, Banyuls-sur-Mer, France
A fully well-balanced hydrodynamic reconstruction
- 05/2022: **Séminaire de mathématiques appliquées**, Nantes, France
CFL-less and parallel kinetic schemes
- 04/2022: **Séminaire M2N – Modélisation mathématique et numérique**, CNAM, Paris, France
CFL-less and parallel kinetic schemes
- 03/2022: **Séminaire d'analyse appliquée A³**, Amiens, France
A very easy high-order well-balanced reconstruction for hyperbolic systems with source terms
- 10/2020: **Séminaire Équations aux dérivées partielles**, Strasbourg, France
High-resolution all-regime schemes
- 03/2019: **Séminaire d'Analyse Numérique et Calcul Scientifique**, Besançon, France
Second order Implicit-Explicit Total Variation Diminishing schemes for the Euler system in the low Mach regime
- 03/2019: **Journées Jeunes ÉDPistes 2019**, Rennes, France (invited)
Consistent section-averaged shallow water equations with bottom friction
- 02/2019: **Séminaire de Calcul scientifique et modélisation**, Bordeaux, France
Consistent section-averaged shallow water equations with bottom friction
- 02/2019: **Séminaire Équations aux dérivées partielles**, Strasbourg, France
A high-order well-balanced scheme for the shallow-water equations with topography and Manning friction
- 03/2018: **Séminaire ÉDP-Analyse de l'Institut Camille Jordan**, Lyon, France
Second order Implicit-Explicit Total Variation Diminishing schemes for the Euler system in the low Mach regime
- 03/2018: **Séminaire de l'équipe ANEDP**, Lille, France
Second order Implicit-Explicit Total Variation Diminishing schemes for the Euler system in the low Mach regime
- 03/2018: **Séminaire de l'équipe MIP**, Toulouse, France
Second order Implicit-Explicit Total Variation Diminishing schemes for the Euler system in the low Mach regime
- 03/2018: **Séminaire EDPAN**, Clermont-Ferrand, France
A high-order well-balanced scheme for the shallow-water equations with topography and Manning friction

- 02/2018: **Séminaire de l'équipe ACSIOM**, Montpellier, France
A high-order well-balanced scheme for the shallow-water equations with topography and Manning friction
- 12/2017: **Workshop NumWave**, Montpellier, France
Second order Implicit-Explicit Total Variation Diminishing schemes for the Euler system in the low Mach regime
- 11/2017: **Workshop : Schémas numériques pour les écoulements bas Mach**, Toulouse, France
Second order Implicit-Explicit Total Variation Diminishing schemes for the Euler system in the low Mach regime
- 09/2017: **Groupe de Travail MathOcéan**, Toulouse, France
A well-balanced scheme for the shallow-water equations with topography and Manning friction
- 03/2017: **Journées Jeunes EDPistes 2017**, Autrans, France
Asymptotically accurate high-order space and time schemes for the Euler system in the low Mach regime
- 01/2017: **Journée des nouveaux entrants**, Toulouse, France
A fully well-balanced scheme for the shallow-water equations with topography
- 09/2016: **Soutenance de thèse pendant le workshop de clôture de l'ANR GeoNum**, Nantes, France
Development of high-order well-balanced schemes for geophysical flows
- 02/2016: **Séminaire des Doctorants du LMJL**, Nantes, France
High-order space and time accuracy for finite volume schemes
- 06/2015: **Troisième école d'été du GDR EGRIN**, Piriac-sur-Mer, France
A well-balanced scheme for the shallow-water equations with topography and bottom friction
- 12/2014: **Séminaire des Doctorants du LMJL**, Nantes, France
A fully well-balanced scheme for the shallow-water model with topography and bottom friction
- 07/2014: **Deuxième école d'été du GDR EGRIN**, Domaine de Chalès (Nouan-le-Fuzelier), France
A conservative well-balanced hybrid SPH scheme for the shallow-water model
- 05/2014: **Séminaire des Doctorants du LMJL**, Nantes, France
A conservative well-balanced hybrid SPH scheme for the shallow-water model

2.4 Grants

- 11/2024 – 10/2028: Coordinator of the ANR JCJC project [SMEAGOL](#) (283k€)
- 02/2021 – 11/2021: PEPS “Jeunes chercheuses et jeunes chercheurs” from INSMI, CNRS (5k€)

2.5 Invitations to other departments

- 11/2021: Arbeitsgruppe Numerische Mathematik, Johannes Gutenberg Universität, Mainz, Germany
 Collaboration with **Andrea Thomann**, one week
- 07/2015: Centre of Mathematics of the Universidade do Minho, Braga, Portugal
 Collaboration with **Stéphane Clain**, two weeks
- 10/2013: Centre of Mathematics of the Universidade do Minho, Guimarães, Portugal
 Collaboration with **Stéphane Clain**, one week

2.6 Popular science activities

11/2023: **DU IRMIA++**, Strasbourg, France

Introduction to well-balanced numerical methods

12/2022: **Math carrers forum**, Nantes, France

Retour d'expérience en recherche

2020: Article in the 2020 ECCOMAS newsletter: **A Bernoulli's relation capturing scheme to simulate the 2011 Japan tsunami**

2.7 Reviews for international journals

- Journal of Applied and Computational Mechanics
- Applied Mathematics and Computation
- Computers & Fluids
- Bulletin of the Iranian Mathematical Society
- Computers & Mathematics with Applications
- Computer Physics Communications
- Engineering Applications of Artificial Intelligence
- ESAIM: M2AN (Mathematical Modelling and Numerical Analysis)
- Journal of Computational Physics
- Journal of Fluid Mechanics
- SIAM Journal on Scientific Computing
- SMAI Journal of Computational Mathematics
- MathSciNet and zbMath

3 Mentoring and committees

3.1 PhD students

Virgile Bertrand 11/2024 - , with R. Côte and E. Franck

“Constructing the structural method for hyperbolic partial differential equations”

Nicolas Pailliez 11/2024 - , with E. Franck, L. Navoret and S. Pamela (Culham)

“Implicit neural representation and operator learning for multi-scale physical problems”

Daria Hrebenshchykova 11/2024 - , with V. Dolean (Eindhoven) and S. Lanteri (Sophia-Antipolis)

“Building physics-based multilevel surrogate models from neural networks. Application to electromagnetic wave propagation”

Amaury Bélières-Frendo	12/2023 - , with C. Dapogny (Grenoble), Y. Privat (Nancy) and C. Prud'homme "Shape optimization through learning"
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3.2 Post-doctoral researchers

Florian Salin	04/2025 - , with C. Courtès, V. Ehrlacher (Paris), E. Franck, L. Navoret and Y. Privat (Nancy) "Greedy training of neural networks"
Yanfei Xiang	04/2025 - , with J. Aghili, J. Digne (Lyon), E. Franck and Y. Privat (Nancy) "Generative models for the optimal control of PDEs and inverse problems"
Dinh Hung Truong	10/2023 - 09/2025, with E. Franck "Design of Neural Operators based on PINNs; applications to wave propagation and fluid dynamics"
Pierre Gerhard	09/2021 - 08/2022, with Ph. Helluy "Explicit CFL-free Discontinuous Galerkin approximation of wave phenomena in the KOUGLOFV code: adaptation to distributed-memory computers using a domain decomposition approach"

3.3 PhD committees

03/2025: Member of the PhD committee for Yen Chung Hung, University Savoie Mont Blanc

12/2022: Reviewer for Irene Gómez-Bueno's PhD thesis, University of Málaga, Spain

03/2022: Member of the PhD committee for Meissa M'Baye, Nantes University

3.4 Master's students

Oussama Bouhen- niche	Thesis (Master 2), 2024-2025, with A. Thomann "Asymptotic-preserving and well-balanced high-order scheme for the Euler equations with gravity"
Franck Jacquard	Text study (Master 1), 2024-2025 "Introduction to the hydrostatic reconstruction"
Virgile Bertrand	Thesis (Master 2), 2023-2024, with E. Franck "ScimBa: Combining Numerical Methods and Machine Learning for Solving PDEs"
Marie Sengler	Internship (Master 1), 2023-2024, with E. Franck and J. Tryoen (Thales) "Multiscale electrostatics and magnetostatics simulations on complex domains"

Jérémy Pawlus	Thesis (Master 2), 2023-2024, with A. Deleforge and E. Franck “Learning Green functions and reduced modeling for the Helmholtz equation”
Alexis Schmitt	Thesis (Master 2), 2023-2024, with K. Lutz “Introduction to the finite element method”
Diana Sol Angel Fonseca-Hincapie	Project (Master 2), 2023-2024, with E. Franck, L. Navoret and A. Thomann “Approximation of hyperbolic partial differential equations with discontinuous neural networks”
Jérémy Pawlus	Internship (Master 1), 2022-2023, with A. Thomann “Introduction to finite volume methods on unstructured grids; application to the Euler equations, implementation in Julia”
Pierre Balzano	Text study (Master 1), 2022-2023, with C. Courtès “Introduction to the analysis of hyperbolic systems”
Alexis Schmitt	Text study (Master 1), 2022-2023 “Hamiltonian systems and symplectic integrators”
Vincent Italiano	Thesis (Master 2), 2021-2022, with H. Baty, E. Franck and V. Vigon “Reduced Order Modeling For Highly Nonlinear Partial Differential Equations Using Physics-Informed Neural Networks”
Colin Holler	Project (Master 2), 2021-2022, with J. Aghili “Structure-preserving methods for PDEs”
Mathéo Marquat	Text study (Master 1), 2021-2022 “Introduction to the analysis of hyperbolic systems”
Daria Hrebenshchikova	Thesis (Master 2), 2023-2024, with V. Dolean (Eindhoven) and S. Lanteri (Sophia-Antipolis) “Multilevel and distributed Physics-Informed Neural Networks for the Helmholtz equation”
Amaury Bénières-Frendo	Thesis (Master 2), 2022-2023, with Y. Privat “Shape optimization through learning”

4 Teaching

(TD $\iff$ problem sessions, TP $\iff$ computer labs)

2013 - 2014, at Nantes University (64h)

Analytic geometry	32h, TD, Bachelor 1 st year
Introduction to numerical analysis	16h, TP (with Scilab), Bachelor 2 nd year
Introduction to numerical analysis	16h, TP (with Scilab), Bachelor 2 nd year
General mathematics	16h, lectures and TD, Bachelor 1 st year
Introduction to numerical analysis	48h, TD + TP (with Scilab), Bachelor 2 nd year
General mathematics	16h, lectures and TD, Bachelor 1 st year
Introduction to numerical analysis	48h, TD + TP (with Scilab), Bachelor 2 nd year
Numerical analysis 1	36h, lectures + TP (with Python), Bachelor 2 nd year
Numerical analysis 2	24h, TD + TP (with Python), Bachelor 2 nd year
Numerical analysis 1	36h, lectures + TP (with Python), Bachelor 2 nd year
Numerical analysis 2	11h, TD + TP (with Python), Bachelor 2 nd year
Mathematics and computer science	32h, TD + TP (with MATLAB), Bachelor 2 nd year
Numerical analysis and optimization	21h, TP (with Python), Bachelor 3 rd year
Numerical analysis 1	36h, lectures + TP (with Python), Bachelor 2 nd year
Numerical analysis 2	17h, TD + TP (with Python), Bachelor 2 nd year
Numerical analysis and optimization	21h, TP (with Python), Bachelor 3 rd year
Numerical analysis	21h, TP (with Python), Bachelor 3 rd year
Algorithms and Programming	34h, TD + TP (with C++), Bachelor 3 rd year
Scientific computing - Discretization of PDEs	14h, TP (with Python), Master 1 st year
Object-Oriented Programming in Python	32h, CI + TP (with Python), Bachelor 2 nd year
Algorithms and Programming	34h, TD + TP (with C++), Bachelor 3 rd year
Scientific computing - Discretization of PDEs	14h, TP (with Python), Master 1 st year
2022 - 2023, at the Université de Strasbourg (63h)	

Object-Oriented Programming in Python
Scientific computing - Discretization of PDEs
Symplectic methods for Hamiltonian ODEs

32h, CI + TP (with Python), Bachelor 2nd year
14h, TP (with Python), Master 1st year
17h, lectures, Master 2nd year

Object-Oriented Programming in Python
Scientific computing - Discretization of PDEs
Scientific computing - Text study

2023 - 2024, at the Université de Strasbourg (52h)

32h, CI + TP (with Python), Bachelor 2nd year
14h, TP (with Python), Master 1st year
6h, of text study, Master 2nd year

Object-Oriented Programming in Python
Scientific computing - Discretization of PDEs

2024 - 2025, at the Université de Strasbourg (42h)

28h, CI + TP (with Python), Bachelor 2nd year
14h, TP (with Python), Master 1st year