Rodrigo Andre Zelada Mancini

Ph.D. candidate in Applied Mathematics.

August 09, 1994

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Social Network

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Skills

- Relationship building
- Organized
- Persistent
- Collaborator
- Compromised
- Work to achieve goals.

Education

2013 – 2019	**Mathematical Engineer**	University of Chile
2016 – 2018	**Additional Specialization: Minor in Astronomy**	University of Chile
2019 – 2020	**Master in Engineering Sciences, minor Applied Mathematics**	University of Chile
2021 – 2025	**Ph.D. in Applied Mathematics**	University of Chile (cotutelle)
2022 – 2025	**Ph.D. in Applied Mathematics** Université de Pau et des Pays de l'Adour	UPPA (cotutelle)

Working Experience

2025 — **Postdoc researcher** — CEA Paris-Saclay
Application of a filtering method for parameter estimation of effective transmission conditions from ultrasonic data.

2021-2025 — **PhD Thesis** — University of Chile and UPPA
Shape optimization for a heat exchanger problem, with a asymptotic analysis to avoid a thin layer between two fluids and dealing with the Laplace-Beltrami operator. Supervisors: Carlos Conca (UCH), Fabien Caubet and Marc Dambrine (UPPA).

2020-2021 — **Supply Chain Analyst** — Fork Chile
Implementation of Machine Learning algorithms and Statistical tools to predict sales (Forecasting).

2019–2020 — **Research and Thesis** — University of Chile
Hydrodynamic model of the Red Tide in Quellón Bay.
Supervisor: Carlos Conca, Co-supervisor: Jorge San Martín.

January 2017 — **Professional Internship I** — DAS (Department of Astronomy)
Maximumum Entropy Method for radio astronomical synthesis image. Supervision: PhD. Simón Cassasus, PhD. Pablo Román and PhD. Axel Osses.

January 2018 — **Professional Internship II** — DIM (Department of Mathematical Engineering)
A computational algorithm for the Legendre-Fenchel conjugate. Supervisor: PhD. Abderrahim Hantoute.

January 2019 — **Professional Internship III** — CMM (Center for Mathematical Modeling)
Validation of numerical algorithms for the Stokes and the Navier-Stokes equations. Supervisor: PhD. Raúl Gormaz.

Awards

2018	Highlighted Student	Facultad de Ciencias Físicas y Matemáticas
2021	Doctoral scholarship	ANID - Chili's governement

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About me

I am enthusiastic about applied mathematics and programming. More than a specific area, I am interested in real life problems; modelling problems and to solve them with mathematics as a tool. I am curious as a scientist, I am not afraid about new knowledge.

Interests

- Scientific computing
- Finite elements method
- Shape optimization
- Deep learning

Languages

- Spanish (Native)
- French (DALF C1)
- English (Cambridge B2)

Programming

- Python/MATLAB
- LaTeX
- C++
- SQL
- Fortran

Maths. and C.S. Softwares

- FreeFem++
- ParaView
- GMSH
- FEniCS Project
- OpenFOAM

Publications

2024 Caubet, F., Conca, C., Dambrine, M., Zelada, R. (2024). **Shape optimization for a heat exchanger with a thin layer**. In Sixteenth International Conference Zaragoza-Pau on Mathematics and its Applications (Vol. 43, pp. 51-61).

Submitted articles

2024 Daniela Capatina, Fabien Caubet, Marc Dambrine, Rodrigo Zelada. **Nitsche extended finite element method of a Ventcel transmission problem with discontinuities at the interface**. 2024. (hal-04587596).

2024 Fabien Caubet, Carlos Conca, Marc Dambrine, Rodrigo Zelada. **How to insulate a pipe?**, joint work with Fabien Caubet, Carlos Conca and Marc Dambrine. 2024. (hal-04772321)

Articles in working process

2024 **Shape optimization for a heat exchanger with discontinuities at the interface**, joint work with Fabien Caubet, Carlos Conca and Marc Dambrine.

April 14, 2025 Rodrigo Andre Zelada Mancini