

RENEE CRISPO

PhD Student in Applied Mathematics at INRIA, Paris

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EDUCATION

- Jan 2026 – present **PhD Student in Applied Mathematics at INRIA, Paris**
Thesis title: Modeling and Simulation of 3D Cardiac Hemodynamics in Hypoplastic Left Heart Syndrome
- Sep 2023 – Dec 2025 **Mathematical Engineering at Politecnico di Milano**
Master of Science degree, Computational Science and Computational Learning
Thesis title: Numerical analysis of loosely coupled systems for Fluid-Structure Interaction under large added-mass effects.
- Sep 2024 – Dec 2025 **Mathématiques de la Modélisation at Sorbonne Université**
Master of Science degree, double degree program between PoliMi and Sorbonne.
- Sep 2020 – Sep 2023 **Mathematical Engineering at Politecnico di Milano**
Bachelor of Science degree
Main courses: Calculus, PDEs, Numerical Analysis, Probability, Statistics, Mechanics, Physics, Computer Science.
Final mark: 108/110
- Sep 2018 – Jun 2019 **Saint Mary's Bay Academy, Weymouth, Nova Scotia, Canada**
Exchange student during fourth year of high school
Awarded as the best 12th grade student in pre-calculus, calculus, biology, and PE leadership.
- Sep 2015 – Jun 2020 **Liceo Scientifico Leonardo da Vinci, Gallarate, Italy**
High school diploma focused in scientific studies
Final mark: 98/100

EXPERIENCE

- Apr 2025 – Jul 2025 **Research Intern at Inria, Paris**
Four-month internship titled "On the numerical Analysis of loosely-coupled schemes for FSI" in COMMEDIA.
Description: development and numerical analysis of loosely coupled schemes (Robin-Neumann and Neumann-Robin) for fluid-structure interaction problems with particular focus on stability analysis, convergence rates and accuracy. Implementation and validation of the theoretical findings in FreeFem++ and FELiScE on linear and non-linear test cases.
- Sep 2021–Jul 2024 **Tutoring**
Private lessons of math, physics and calculus for middle and high school students.

PROJECTS

UNIVERSITY PROJECTS:

Mar 2025	Numerical Analysis of blood flow in a bifurcation and of explicit schemes for FSI Project in FreeFem++ for the course of <i>Modèles mathématiques et méthodes numériques pour la simulation en hémodynamique</i> at Sorbonne.  Repo .
Jan 2025	Implementation of a Navier-Stokes solver with boundary conditions in C and FreeFem++ Project in C and Python for the course of <i>From EDP to their resolution by Finite Elements</i> at Sorbonne.  Repo .
Dec 2024	Domain Decomposition Methods: analysis and implementation of the Helmotz equation Project in Python and MPI for the course of <i>HPC for Numerical Methods and Data Analysis</i> at Sorbonne.  Repo .
Nov 2024	A comparative analysis of MGS and TSQR algorithms in parallel environment Project in Python and MPI for the course of <i>HPC for Numerical Methods and Data Analysis</i> at Sorbonne.
Apr 2024 – Sep 2024	Isogeometric analysis of high-order PDEs Discretisation and analysis of the Cahn-Hilliard equation focusing on its application in tumor growth, using the GeoPDEs library in MatLab for the course of <i>Numerical Analysis for PDEs</i> at PoliMi.  Repo .

AWARDS AND SCHOLARSHIPS

2022 – 2025	High-merit scholarship Politecnico di Milano: scholarship for students with particularly high merit (mark average over 27/30)
2022	Best Freshman Politecnico di Milano: award based on the academic achievement of the first year of the Bachelor degree

LANGUAGES

Italian: native. **English:** C1. **French:** A2.

TECHNICAL STRENGHTS

Programming languages: MatLab, C++, C, Python, R, Mathematica.

Scientific writing: LaTeX, Beamer.

Scientific tools: NumPy, Matplotlib, MPI, FreeFem++.