SIMON RUGET

PhD and Engineer in Applied Mathematics

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EDUCATION

PhD: Inverse Multiscale Problems

CERMICS x Inria (Matherials)

2022-2025

- Study of inverse problems for multiscale equations in context of (qualitatively and quantitatively) limited information.
- PDE | Optimization | Homogenization | Bayesian Statistics | Machine Learning.
- Author of two scientific articles in preparation.
- Presentations at 8 national and international seminars (SIAM, ECCOMAS, GAMM, etc.).
- Softwares: FreeFem++, PyTorch.

MSc in Applied Mathematics

École Polytechnique x Sorbonne Université x École des Ponts et Chaussées

2021-2022

- GPA : 3.7/4 (With Highest Honour).
- PDE | SDE (Itō calculus) | Control | Optimization.
- Machine Learning.

Engineering Degree (MSc)

École des Ponts et Chaussées

2018-2022

- GPA : 3.9/4.
- Department of Mathematics and Computer Engineering with a specialization in Numerical Simulation and Financial Engineering.
- Probability | Statistics | PDE | Optimization | Machine Learning.

BSc in Foundamental Mathematics and Physics

Lycée Henri IV

2016-2018

LANGUAGES

- **French**: Native language.
- **English**: Full professional proficiency (C1/C2).
- **German**: B2 level.

PROGRAMMING

C/C++ | Python | R | LateX | PyTorch | Github

COMMITMENT

- Member of the Military Reserve Force at the **Paris Fire Brigade** (Ménilmontant rescue center, around 300 victim rescue operations carried out, +700 hours of intervention).

PROFESSIONAL EXPERIENCE

R&D Engineer

EDF

2022 (6 months, internship)

- Numerical methods for incompressible turbulent Navier-Stokes equations.
- Author of an article published in a peer-reviewed journal (Comptes Rendus de l'Académie des Sciences de Paris, DOI: https://doi.org/10.5802/crmeca.202).

Research Assistant

CEA x Inria (Matherials)

2021 (5 months, internship)

- New method for computing quantum resonances.
- Author of an article published in a peer-reviewed journal (Journal Of Computational Physics, DOI: https://doi.org/10.1016/j.jcp.2023.111928).

DevOps Engineer

Thales Alenia Space

2020 (5 months, internship)

- Implementation of an integrated architecture including transport, storage and exploitation of satellite data as part of the MEOLUT NEXT project.
- Softwares: Kafka, InfluxDB, Grafana, Docker.

Teaching experience

École des Ponts et Chaussées

2022-2025

- Supervisor for 4 BsC-student: Bayesian Approach for effective coefficient identification (6months).
- Supervisor for a MsC-student: Neural Operator for PDE (5months).
- Lecture on Analysis for PDEs (25 students | 30h).
- Lecture on Variational and Energetic Approaches to solving PDEs (24 students | 15h).

FINANCE

FFR : Foundations of Financial Risk (GARP)

2024

- Acquire the fundamentals of financial risk management (credit risk, market risk, operational risk, Basel agreements, etc.).

Project: Pricing of european options

École des Ponts et Chaussées

2024 (3months)

- Estimation of the price of European options and study of the volatility smile for models with discrete and log-normal jumps.