

Charlie SIRE — Curriculum Vitae

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Post-doctoral researcher at INRIA Saclay Centre - Ecole Polytechnique

Education

- **Post-doctoral researcher** **Paris**
Since 2023
INRIA Saclay Centre, Team ASCII - École Polytechnique, CMAP
Code transposition: Bayesian calibration and uncertainty propagation in different transposition problems
- **Ph.D thesis in Applied Mathematics** **Paris, Saint-Étienne**
2020-2023
École des Mines Saint-Étienne - IRSN - BRGM
Quantization methods for the visualization of the flooding risk, defended November 27, 2023
- **Engineering degree** **Lyon**
2016-2020
École Centrale Lyon
Master of Mathematics and Risk Engineering
- **Master 1 in Computer Science** **Wrocław**
2018
Wrocław University of Science and Technology

Publications

Preprints.....

- **FunQuant: a R package to perform quantization in the context of rare events and time-consuming simulations.** A joint work with Yann Richet, Rodolphe Le Riche, Didier Rullière, Jérémy Rohmer, and Lucie Pheulpin. Submitted to Journal of Open Source Software. <https://hal.science/hal-04189822>
- **Augmented quantization: a general approach to mixture models.** A joint work with Didier Rullière, Rodolphe Le Riche, Jérémy Rohmer, Yann Richet, and Lucie Pheulpin. Submitted to Statistics and Computing. <https://hal.science/hal-04209768v1>

Accepted for publication.....

- **Quantizing rare random maps: application to flooding visualization.** A joint work with Rodolphe Le Riche, Didier Rullière, Jérémy Rohmer, Lucie Pheulpin and Yann Richet. Published in Journal of Computation and Graphical Statistics. <https://doi.org/10.1080/10618600.2023.2203764>
- **Improved metamodels for predicting high-dimensional outputs by accounting for the dependence structure of the latent variables: application to marine flooding.** A joint work with Jérémy Rohmer, Sophie Lecacheux, Deborah Iidier and Rodrigo Pedreros. Published in Stochastic Environmental Research and Risk Assessment. <https://doi.org/10.1007/s00477-023-02426-z>

Talks in international conferences

- **SIAM UQ24** **Trieste**
February 2024
Augmented quantization: a general approach to mixture models
- **MASCOT-NUM 2023** **Le Croisic**
April 2023
Augmented quantization: a general approach to mixture models
- **ECCOMAS 2022** **Oslo**
June 2022
Quantization Applied to the Visualization of Low Probability Flooding Events.

- **SIAM UQ22**
Quantization Applied to the Visualization of Low Probability Flooding Events
Atlanta
April 2022
- **SIAM UQ22**
Robust inversion under uncertainty for flooding risk analysis
Atlanta
April 2022
- **UNCECOMP 2021**
Robust inversion under uncertainty for risk analysis with application to the failure of defences against flooding.
Streamed from Athens
June 2021

Teaching

- **Lecturer in the Master IMAM**
Université Paris-Saclay
Design of experiments
Paris
Since 2023
- **Lecturer in the Data Science Major and Master “Maths in Action”**
École des Mines Saint-Étienne
Design of Experiments, Gaussian Processes, Global Optimization
Saint-Étienne
Since 2020

Internships

- **Internship in Applied Mathematics**
The Manitowoc Company
Implementation of Machine Learning strategies for crane failure prediction
Dardilly
2019-2020
- **Data scientist intern**
Circles.life
Machine learning approaches to enhance marketing strategies
Singapore
2019

Skills

- **Language Programming**
Python: Everyday use with libraries NumPy, Pandas, PyMC, openturns, pylibkriging
R: Everyday use, development of the package FunQuant
- **Expertise**
Kriging, Importance Sampling, Clustering, Gaussian Processes, Bayesian Calibration, Principal Component Analysis, Global Optimization methods, Stepwise Uncertainty Reduction, Design of Experiments

Hobbies

- **Sports**
Hiking: Trekking trips once or twice a year
Tennis: Training several times a week
Cycling: Cycling trips every year
- **Board games**
Chess, Belotte Coinché