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 — **Wroclaw**, *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**   **Atlanta**
Quantization Applied to the Visualization of Low Probability Flooding Events   *April 2022*

○ **SIAM UQ22**   **Atlanta**
Robust inversion under uncertainty for flooding risk analysis   *April 2022*

○ **UNCECOMP 2021**   **Streamed from Athens**
Robust inversion under uncertainty for risk analysis with application to the   *June 2021*
failure of defences against flooding.

Teaching

○ **Lecturer in the Master IMAM**   **Paris**
Université Paris-Saclay   *Since 2023*
Design of experiments

○ **Lecturer in the Data science Major and Master "Maths in Action"**   **Saint-Étienne**
École des Mines Saint-Étienne   *Since 2020*
Design of Experiments, Gaussian Processes, Global Optimization

Internships

○ **Internship in Applied Mathematics**   **Dardilly**
The Manitowoc Company   *2019-2020*
Implementation of Machine Learning strategies for crane failure prediction

○ **Data scientist intern**   **Singapore**
Circles.life   *2019*
Machine learning approaches to enhance marketing strategies

Skills

○ **Language Programming**
Python: Everyday use with libraries NumPy, Pandas, PyMC, openturns, pylibkriging
R: Everyday use, development of the package FunQuant

○ **Methodologies**
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