Charlie SIRE — Curriculum Vitae

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Post-doctoral researcher at INRIA Saclay Centre - Ecole Polytechnique

Education

Post-doctoral researcher　　　　　　　　　　　　　　　　　　　　　　　**Paris**
INRIA Saclay Centre, Team ASCII - École Polytechnique, CMAP　　　　　　　*Since 2023*
Code transposition: Bayesian calibration and uncertainty propagation in
different transposition problems

Ph.D thesis in Applied Mathematics　　　　　　　　　　　**Paris, Saint-Étienne**
École des Mines Saint-Étienne - IRSN - BRGM　　　　　　　　　　　　　　*2020-2023*
Quantization methods for the visualization of the flooding risk,
defended November 27, 2023

Engineering degree　　　　　　　　　　　　　　　　　　　　　　　　　　**Lyon**
École Centrale Lyon　　　　　　　　　　　　　　　　　　　　　　　　　*2016-2020*
Master of Mathematics and Risk Engineering

Master 1 in Computer Science　　　　　　　　　　　　　　　　　　　**Wroclaw**
Wrocław University of Science and Technology　　　　　　　　　　　　　　　*2018*

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**
Augmented quantization: a general approach to mixture models　　　　　*February 2024*

MASCOT-NUM 2023　　　　　　　　　　　　　　　　　　　　　　　　**Le Croisic**
Augmented quantization: a general approach to mixture models　　　　　　　*April 2023*

ECCOMAS 2022　　　　　　　　　　　　　　　　　　　　　　　　　　　**Oslo**
Quantization Applied to the Visualization of Low Probability Flooding Events.　　*June 2022*

- **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 Master of Data Science**   **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