

Daphné Giorgi

Research Engineer

Experience

Research Engineer

2014–Present **CNRS, LPSM – Sorbonne Université, Paris**

- Multilevel estimators
- Clustering in longitudinal networks
- Individual based models for populations simulation
- Simulations web page at Simulations@LPSM
- Software development in C++, R
- Web application development with Flask
- Additional skills: SWIG, Rcpp

2012–2014 **INRIA, CMAP, Commands Team, École Polytechnique, Paris–Saclay**

- Toolbox solving optimal control problems
- Software development in C++
- GUI development in Qt
- Additional skills: CMake, Continuous Integration

Internship

2011 **GDF Suez Trading, Risk Methodologies, Paris, La Défense**

- 6 months
- Proximities: Principal Component Analysis, Seasonal adjustment of curves
 - Software development in VBA, R

2010 **HSBC, Quantitative Risk Valuation Group, Paris**

- 6 months
- Basis spread market: Tool of curves construction, Bermudean options pricer
 - Software development in C++

Education

2014–2017 **PhD Applied Mathematics, Université Pierre et Marie Curie, Paris 6**

2009–2010 **Master IFMA, Université Pierre et Marie Curie, Paris 6**

Pass with honours degree

2007–2009 **Master Fundamental Mathematics, Università degli Studi di Firenze, Italy**

Pass with 110/110 magna cum laude

PhD thesis

title *Théorèmes limites pour estimateurs Multilevel avec et sans poids. Comparaisons et applications*

supervisor Gilles Pagès

Master thesis

title *Probability Models for Biology: Genetics and Neurosciences*

supervisors Lorenzo Zambotti & Marco Romito

Software

- 2020 **R Package**, *Individual based model population simulation*, IBMPopSim, <https://cran.r-project.org/web/packages/IBMPopSim/>
<https://daphnegiorgi.github.io/IBMPopSim/>
- 2018 **R Package**, *Clustering in Longitudinal Networks*, ppsbm, <https://CRAN.R-project.org/package=ppsbm>
- 2017 **Simulations web page**, Simulations@LPSM
- 2014 **Bocop**, *Toolbox solving optimal control problems*, <https://www.bocop.org/>

Commitee/jury

Organizing commitee

- 2019-present **Seminar**, *infomath*, Seminar on numeric tools for mathematics, Sorbonne Université, Paris
- 2022 **Conference**, *FoCM 2023*, Foundations of Computational Mathematics, Sorbonne Université, Paris
- 2021 **Conference**, *Conference of Numerical Probability in honour of Gilles Pagès' 60th birthday*, 26-28 May 2021, Sorbonne Université, Paris

Jury member

- 2022 **CNRS**, *IR Bap E*

Communication

- 2021 **Seminar**, *IBMPopSim : un paquet R pour la simulation de populations individu centrées*, Webinaires Maths-Innovation de SUMMIT Mathématiques pour la finance et l'assurance, Sorbonne Université, Paris
- 2020 **Publication**, *Weak error for nested Multilevel Monte Carlo*, D. Giorgi, V. Lemaire, G. Pagès, Journal: Methodolgy and Computing in Applied Probability
DOI: <https://doi.org/10.1007/s11009-019-09751-3>
- 2019 **Seminar**, *An R package for simulating Individual-Based Models*, Insurance Data Science Conference 2019, ETH, Zurich
- 2017 **Seminar**, *Asymptotic behaviour of Multilevel estimators with and without weights*, Groupe de travail des Thésard, LPMA, Paris 7
- Seminar**, *Asymptotique des estimateurs Multilevel avec et sans poids*, Groupe de travail Méthodes Stochastiques et Finance, CERMICS, Marne-la-Vallée
- Publication**, *Limit theorems for weighted and regular Multilevel estimators*, Autors: D. Giorgi, V. Lemaire, G. Pagès, Journal: Monte Carlo Methods and Applications
DOI: <https://doi.org/10.1515/mcma-2017-0102>
- Flash talk**, *Limit theorems for Multilevel estimators with and without weights*, Advances in Financial Mathematics Conference, Paris
- 2016 **Seminar**, *Limit Theorems for Weighted and Regular Multilevel Estimators*, Groupe de travail Finance mathématique, probabilités numériques et statistique des processus, LPMA, Paris
- Minisymposium**, *Comportement asymptotique fort et faible des estimateurs multilevel*, CANUM 2016, Obernai
- 2014 **Seminar**, *Bocop Boîte à Outils en Commande Optimale*, Groupe de travail CMAP, CMAP Polytechnique, Paris-Saclay

Teaching

2018-2022 **C++**, *Programmation en C++*, M1, TP

2018 **Python**, L3, TP

Computer skills

	Level	Skill	Comment
Language:	■■■■■	C++	<i>Standard 11,14,17,20</i>
	■■■■■	Python	<i>Pytorch, jupyter cling</i>
	■■■■■	R	<i>Rcpp, packages development</i>
	■■■■■	VBA	
	■■■■■	Qt	
	■■■■■	Scilab, Matlab	
	■■■■■	LaTeX	
	■■■■■	HTML	
OS:	■■■■■	GNU/Linux	<i>Ubuntu, Debian</i>
	■■■■■	Microsoft Windows	
	■■■■■	OS X	
Tools	■■■■■	git	<i>GitLab instance (PLMlab, LPSM...)</i>

Languages

	Level	Language	Comment
	■■■■■	French	<i>Native language</i>
	■■■■■	Italian	<i>Native language</i>
	■■■■■	English	<i>Fluent, Written and spoken</i>
	■■■■■	Arabic	<i>Basic communication skills, Egyptian dialect</i>

Interests

Volunteer **Mat'les vacances**, *Teacher at the Summer Mathematic Camp*, (2017, 2018, 2019)

Volunteer **Mat'les ressources**, *Coordinator of submissions*, 2017-present

Sports Cycling, swimming

Hobbies Origami, piano