Pierre-O. Goffard

Ph.D. student in applied mathematics

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LaGauffre.github.io
25 years old

Professional experience

Since 2011 **Ph.D. Student and junior actuary**, *Aix-Marseille university and AXA France (french partnership named convention CIFRE)*, Marseille, France.

April - September 2011 **Project Manager (intern)**, *AXA France*, Marseille, France.
- Optimization of the agregation procedure of the AXA France life insurance portfolio of savings contracts.

May - July 2010 **Project Manager Assistant (intern)**, *IFREMER*, Brest, France.
- Development of composite indicators to help decision making

July - August 2009 **Marketing Assistant (intern)**, *Crédit Mutuel de Bretagne*, Brest, France.
- Various activities (computer science and basic statistical analysis)

Education

Since 2011 **Ph.D. Student**, *Aix-Marseille University and AXA France (french patnership named convention CIFRE)*, Marseille, France.
Ph.D. thesis in applied mathematics. Academic supervisors: Denys Pommeret and Stephane Loisel.
- Numerical inversion of Laplace transform via polynomial expansions: Approximation and estimation of probability density function with application in insurance
- Additional training: Master of science (M.Sc.) in financial and actuarial sciences at *ISFA*

2008–2011 **Master of Science (M. Sc.)**, *ENSAI*, Rennes, France.
- Major: Advaced Statistical Engineering
- Additional training (during the 3^{rd} year, 2010-2011): Master of statistics and economerics at the *University of Rennes 1*, focused on scientific research, in tandem with ENSAI engineering degree

2006–2008 **Classes Préparatoires**, *Dupuy de Lôme High School*, Lorient, *MP*.
2 years of intensive training in Math, Physics and Chemistry.

Skills

Technical Probability and statistics for finance and insurance (or anything else)

IT R Studio, SAS, Mathematica, Matlab, Java, HTML, CSS, Ruby, Markdown, $Late\chi$

Languages French *(mother tongue)*, English *(full professional proficiency)*, Spanish *(notions)*

Research Expertise

Numerical inversion of Laplace transform, *I work out a numerical method to recover probability density function from their Laplace transform. The desired PDF takes the form of a polynomial expansion. The method extend naturally within a multi-dimensional context and the approximation can turn into a nonparametric statistical estimation of the PDF when data are available. I widely studied the other numerical method in the litterature and compare them to mine.*

Ruin theory, *In ruin therory, we model the financial reserves of a non life insurance company using stocastic processes. We aim to compute the probabilty that the financial reserves falls below 0. This quantity, aka probability of ruin, is tricky to capture and motivates the use of numerical methods such as those involving Laplace transform inversion.*

Teaching experience

2012–2014 **Teaching assistant**, *Aix-Marseille University*, Marseille, France.
Master in actuarial science
- Introduction to ruin theory (graduate class, 6h)

2013–2014 **Teaching assistant**, *ENSAI*, Rennes, France.
Master in statistical engineering
- Introduction to ruin theory (graduate class, 6h)

2012–2013 **Teaching assistant**, *ENSAI*, Rennes, France.
Bachelor of mathematics applied to social science
- Advanced probability and statistics (undergraduate class, 30h)

2011–2012 **Teaching assistant**, *ENSAI*, Rennes, France.
Bachelor of Biology
- Introduction to statistical analysis (undergraduate class, 30h)

Publications

Submitted/under revision

2014 **P.O. Goffard & Xavier Guerrault**, *Is it optimal to group policyholders by age, gender, and seniority for BEL computations based on model points?*, European Actuarial Journal, (under revision).

2013 **P.O. Goffard, Stephane Loisel & Denys Pommeret**, *A polynomial expansion to approximate the ultimate ruin probability in the compound Poisson ruin model*, Journal of Computational and Applied Mathematics, (under revision).

Selected communications

France 2014 $46^{\text{ème}}$ **journées de statistique**, *Rennes*.

Germany 2013 **Conference on Advances in Financial and Insurance Risk Manangement**, *Munich*.

France 2013 $5^{\text{ème}}$ **Rencontre des Jeunes Statisticiens**, *Aussois*.

France 2013 $45^{\text{ème}}$ **journées de statistique**, *Toulouse*.

Switzerland 2013 **Perspective on Actuarial Risks in Talks of Young Researchers**, *Ascona*.

Hobbies

Music Campfire guitar player

Sports Surf, windsurf, soccer