Pierre-O. Goffard

Post-Doc in applied mathematics

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26 years old

Professional experience

Since 2015 **Post-Doctoral fellow**, *Aarhus university*, Aarhus, Denmark.

2011–2015 **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 aggregation 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 2014 **Master of science (M.Sc.)**, *ISFA*, Lyon, France.
- Major: Financial and actuarial sciences
- French actuary diploma (correspondence courses)

2011–2015 **Ph.D. in applied mathematics**, *Aix-Marseille University and AXA France (french patnership named convention CIFRE)*, Marseille, France.
Polynomial approximation of probability density function and applications to insurance.
Advisors: Denys Pommeret and Stephane Loisel.

2008–2011 **Master of Science (M. Sc.)**, *ENSAI*, Rennes, France.
- Major: Advanced Statistical Engineering
- Additional training (during the 3^{rd} year, 2010-2011): Master of statistics and econometrics 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, *Latex*

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 the knowledge of their Laplace transform. The desired PDF takes the form of a polynomial expansion. The method extends naturally within a multi-dimensional context and the approximation formula can turn into a nonparametric statistical estimator of the PDF when data are available .*

Ruin theory, *In ruin theory, we model the financial reserves of a non life insurance company using stocastic processes. We aim at computing the probability 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**, *Aix-Marseille University*, Marseille, France.
Bachelor of mathematics applied to social science
- Advanced probability and statistics (undergraduate class, 30h)

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

Publications

Accepted/Published

2015 **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.

2015 **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.

Submitted/under revision

2015 **P.O. Goffard, Stephane Loisel & Denys Pommeret**, *Polynomial approximations for bivariate aggregate claims amount probability distributions*, (under revision).

Selected communications

France 2015 **Université d'été de l'institut des actuaires**, *Brest*.

France 2015 **PhD Thesis oral defense**, *Marseille*.

UK 2015 19^{th} **International Congress on insurance, mathematics, and economics**, *Liverpool*.

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*.

Refereing activities

- Methodology and Computations in Applied Probability (MCAP)

Hobbies

Music Campfire guitar player

Sports Surf, windsurf, soccer