

Charles TILLIER

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French / Single / 29 years old



Research interests: Heavy-tailed phenomena; Regular variation; Dietary risk; Insurance; Rare events; Extreme Value Theory; Dependent time series; Markov chains; Ruin theory; Stochastic processes; Regression models; Consistency

EMPLOYMENT

2017-2018: Post Doctoral position as an **Assistant researcher**. Hamburg University.

2016-2017: **ATER**. Paris Nanterre.

2013-2016: **PhD Student**. Paris Nanterre & Pierre et Marie Curie (Jussieu).

Title: « **Stochastic processes and risk indicators in insurance and dietary risk assessment** ».

Supervision: Pr. **Patrice Bertail** (Paris Nanterre) and Pr. **Olivier Wintenberger** (Jussieu).

2013: Six-month internship under the supervision of Dr. Jessica Tressou. INRA, Paris. **Statistical analysis of mathematical models related to dietary risk assessment.**

EDUCATION

2017: PhD in Applied Mathematics. Speciality **Statistics**. Paris Nanterre & Jussieu.

2013: Master degree in **Applied Mathematics**. URCA, Reims.

2012: Bachelor degree (Licence 3) in **theoretical Mathematics**. URCA, Reims.

PUBLICATIONS

1. Tillier, C. (2018). **Extremal index for a class of heavy-tailed stochastic processes in risk theory**. Advanced in Non-parametric Statistics, ISNPS 2016. Ed Bertail, P., Blanke D., Cornillon, P.A., Matzner-Lober E. *Springer*. To appear.
2. Neumeyer, N., Selk, L. and Tillier C. (2018). **Semi-parametric transformation boundary regression models**. *Submitted*.
3. Tillier, C. (2018). **Extremal properties and risk indicators for dietary risk assessment models with heavy-tailed intakes**. *Submitted*.
4. Bertail P, Ciolek G and Tillier C. (2018). **Robust estimation for Markov chains with application to PDMP**. *Statistical Inference for Piecewise-Deterministic Markov Processes*.
5. Tillier, C. and Wintenberger, O. (2017). **Regular variation of a random length sequence of random variables and application to risk assessment**. *Extremes*.
6. Bertail, P., Cléménçon S., Tillier C. (2016). **Extreme values statistics for Markov chains with applications to finance and insurance**. *François Longin, Wiley*. 139-171.
7. Bertail P. and Tillier C. (2015). **La modélisation des risques d'exposition aux contaminants alimentaires**. *Risques, les cahiers de l'assurance*. N°96, 56-65.
8. Tillier C. (2014). **Théorie de la ruine et risque alimentaire**. *Publication de la SFDS*.

RESEARCH MANAGEMENT (Coorganisation)

- 04/2019: Co-organisation with Dr. Cécile Hardouin and Dr. Thomas Laloë of the one-week conference « **8^{ème} Rencontres des Jeunes Statisticiens** ». Porquerolles.
See <http://rencontres-jeunes-statisticiens.sfds.asso.fr>.
- 05/2016: Conference "**Risk, Extremes and Contagion**". MODAL'X, Paris Nanterre.
See <http://risksemester.ameriska.net/fr/conferences/risks-extremes-and-contagion>.
- 01/2016: Thematic semester "**Risk and Applications**". LSTA, Jussieu.
See <http://risksemester.ameriska.net/fr/home>.
- 05/2015: First Meeting "AMERISKA Network". LSTA, Jussieu.
- 10/2014: Workshop "**Risk theory**". MODAL'X, Paris Nanterre.
- 05/2014: National Agence for Research project AMERISKA "*Analyse Multivariée des Extrêmes et du RISQue Alimentaire*". See <http://risksemester.ameriska.net/fr/home>.

STAYS-FORMATION

- 2014-2017: **Regular visits** (one week per month) at the Institute of Mathematical Sciences of the **University of Copenhagen** invited by Olivier Wintenberger.
- 06/2015: Week-long training on "Extreme Value Theory" organised by the "Mathematical Foundations of Heavy Tailed Analysis". University of Copenhagen.
- 05/2015: **Week-long training** at the Department of Mathematics and Statistics of the **University of Ottawa** invited by Rafal Kulik.
- 07/2014: Institute of Actuaries Summer school organized by ISUP, LSTA and ENSAE.
- 06/2014: Week-long training in "Model Selection in High-Dimensional Regression and Related issues" and "Firm Selection and Labor Reallocation". ENSAE, Paris.

PRESENTATIONS

Conferences

1. 07/2018: 12th International Vilnius Conference on Probability Theory, Vilnius. **Estimation in boundary regression models.**
2. 06/2018: 4th ISNPS, Salerno. **Extremal behavior for a class of stochastic processes with application to risk theory.**
3. 05/2018: 50th JDS by SFDS, Paris Saclay. **Estimation and testing problems in nonparametric regression with bounded support.**
4. 03/2018: 6th Spring School "Structural Inference in Statistics", Spreewald. **Semi-parametric transformation boundary regression models.**
5. 06/2017: 10th Extreme Value Analysis, TU Delft. **Regularly varying Markov chains and application to risk theory.**
6. 05/2017: 49th JDS by SFDS, Avignon. **Regularly varying stochastic recurrence equations.**

7. 04/2017: Conference « Entropie, Mots et Statistique », Reims. **Study of the extremal behavior of stochastic processes involved in risk theory.**
8. 03/2017: 7th RJS by SFDS, Porquerolles. **Extremal properties and risk indicators for dietary risk assessment models with heavy-tailed intakes.**
9. 07/2016: Concluding International Conference « Rare » on Risk Analysis, Ruin theory and Extremes. La Baule, France. **Regular variation of a random length sequences of random variables with applications to finance and insurance.**
10. 06/2016: 3rd ISNPS. Palais des Glaces, Avignon. **A generalization of Breiman's lemma.**
11. 09/2015: Eurobanking, Evergreen Business Center, Issy les Moulineaux. **Application of some statistical methods in the banking field.**
12. 08/2015: StatMathAppli organised by INRA, Villa Clythia, Fréjus. **Extreme value statistics for general Markov chains.**
13. 12/2014: Extreme Events in Finance by ESSEC, Abbaye de Royaumont. **Extreme values statistics for Markov chains with applications to Finance and Insurance.**
14. 06/2014: 46th JDS, Rennes. **Statistical analysis of stochastic models in risk theory and dietary risk assessment.**

Seminars

1. 06/2018: **Statistic analysis of risk models.** Besançon.
2. 03/2018: **Risk indicators in non-life insurance mathematics.** Le Mans.
3. 12/2017: **Nonparametric regression when the support is bounded.** INRA, Paris.
4. 06/2017: **Extremal properties of Shot Noise Processes.** LSTA, Jussieu.
5. 09/2016: **Regular variation of a random length sequence of r.v.'s.** Paris Nanterre.
6. 05/2016: **Regular variation for Shot Noise Processes.** Inst. of Math. Sciences, Copenhagen.
7. 02/2015: **Multivariate regular variation theory and its applications.** LMR, Reims.
8. 04/2015: **Extreme values for Markov chains and application to insurance.** LSTA, Jussieu.
9. 11/2014: **Non-life insurance mathematics.** Workshop « *Risk theory* ». Paris Nanterre.
10. 02/2014: **Application of ruin theory to the dietary risk assessment.** LMR, Reims.
11. 01/2014: **Ruin theory and dietary risk.** Working group « EVT ». LSTA, Jussieu.

Main Participations

- 05/2018: Workshop « Rare events, Extremes and Machine Learning ». Paris.
- 06/2017: *Conference* « Heavy Tails and Long Range Dependence ». TélécomParisTech.
- 02/2017: Workshop « Statistics for Piecewise Deterministic Markov Processes ». Nancy.
- 05/2016: Conference « Dependence, Stability and Extreme » organised by Ameriska network. Fields institut, Toronto.
- 06/2015: 9th Extreme Value Analysis conference, Ann Arbor, USA.
- 06/2015: Conference « Mathematical Foundations of Heavy Tailed Analysis ». Copenhagen.
- 05/2015: Conference « Dependence, Limits Theorems and Applications ». Institut Henri Poincaré. Paris.

TEACHING

2016-2017 (ATER, Paris Nanterre)

- *Analyse*. Bachelor degree (BAD) Economics-Law Studies.
- *Analyse*. BAD Economics-Management.

2015-2016 (90 hours. Independent contractor position, URCA, Reims)

- *Analyse* (60 hours). BAD Biology.
- *Quantitative tools* (30 hours). BAD Economics-Management.

2014-2015 (210 hours. Independent contractor position, URCA, Reims)

- *Analyse* (60 hours). BAD Mathematics.
- *Upgrading in Mathematics* (30 hours). BAD Health and Social Sciences.
- *Probability* (60 hours). BAD Economics-Management.
- *Probability and Statistics* (30 hours). BAD Biology.
- *Geometry* (30 hours). BAD Physics.

2013-2014 (110 hours. Independent contractor position, URCA, Reims)

- *Analyse* (60 hours). BAD Mathematics.
- *Linear Algebra* (30 hours). BAD Economics-Management.
- *Geometry* (20 hours). BAD Physics.

2010-2013 (Private lessons)

- High and Middle school (8 hours a week). Private Company « Math Progress ». Reims

SKILLS AND OTHER ACTIVITIES

Computing

- Proficient with statistical softwares: SAS, R, VBA and SPSS.
- Thorough knowledge: Java, Html, SQL, C++ and Matlab.
- Strong knowledge of Microsoft Office.

Languages

- French: Native.
- English: Fluent.
- Spanish: Intermediate.

Interests

- President of the association of Master « Applied Mathematics and Economics ».
- President of a sport association, vice-president and treasurer of a music association.
- Music and Sport: Guitare, running, swimming, futsal and mountain biking.