Charles TILLIER

Phone: (+33)6.44.24.04.05.
Email: charles.tillier@gmail.com
Website: http://tillier.perso.math.cnrs.fr
French / Single / 30 years old

Research interests: Machine learning; Heavy-tailed phenomena; Dietary risk; Insurance; Extreme Value Theory; Dependent time series; Markov chains; PDMP; Ruin theory; Stochastic processes; Regression models; Consistency; Robustness.

EMPLOYMENT

2018-: Post Doctoral position as an **Assistant researcher**. Télécom ParisTech.
Thematic: **Machine learning**. Supervision: Pr. Stéphan Clémençon.
2017-2018: Post Doctoral position as an **Assistant researcher**. Hamburg University.
Thematic: **Boundary regression models**. Supervision: Pr. Holger Drees / Pr. Natalie Neumeyer.
2016-2017: **ATER**. Paris Nanterre.
2013-2016: **PhD Student**. Paris Nanterre / Jussieu / Mathematical institute of Copenhagen.
Title: **Stochastic processes and risk indicators in insurance and dietary risk assessment**.
Supervision: Pr. Patrice Bertail (Paris Nanterre) / Pr. Olivier Wintenberger (Jussieu).
2013: Six-month internship. AgroParisTech, INRA, Paris.
Thematic: Statistical analysis of dietary risk models. Supervision: Dr. Jessica Tressou.

EDUCATION

2017: PhD in Applied Mathematics. Speciality **Statistics**. Paris Nanterre / Jussieu.
2013: Master degree in **Applied Mathematics**. URCA, Reims.
2012: Bachelor degree in **Theoretical Mathematics**. URCA, Reims.

PUBLICATIONS

1. Dombry, C., Tillier, C. and Wintenberger, O. (2019). **Hidden regular variation for Point Processes and the single/multiple large point heuristic**. *In progress*.
2. Tillier, C. (2019). **Estimation in boundary regression models with non-equidistant design points**. *In progress*.
3. Tillier, C. (2019). **Extremal properties and risk indicators for dietary risk assessment models with heavy-tailed intakes**. *In progress*.
4. Neumeyer, N., Selk, L. and Tillier C. (2018). **Semi-parametric transformation boundary regression models**. *Submitted*.
5. Tillier, C. (2018). **Extremal index for a class of heavy-tailed stochastic processes in risk theory**. Advanced in Non-parametric Statistics, 3[rd]ISNPS. Ed Bertail, P., Blanke D., Cornillon, P.A., Matzner-Lober E. *Springer*.
6. Bertail P., Ciolek G. and Tillier C. (2018). **Robust estimation for Markov chains with application to PDMP**. *Statistical Inference for Piecewise-Deterministic Markov Processes*. Wiley. 135-175.

7. Tillier, C. and Wintenberger, O. (2017). **Regular variation of a random length sequence of random variables and application to risk assessment**. *Extremes* (21). 27-56.

8. Bertail, P., Clémençon S. and Tillier C. (2016). **Extreme values statistics for Markov chains with applications to finance and insurance**. *François Longin, Wiley*. 139-171.

9. 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.

10. Tillier C. (2014). **Théorie de la ruine et risque alimentaire**. *Publication de la SFDS.*

RESEARCH MANAGEMENT (Coorganisation)

➢ *04/2019*: Conference "**8ème Rencontres des Jeunes Statisticiens"**. Porquerolles. *See* http://rencontres-jeunes-statisticiens.sfds.asso.fr.

➢ *2018-2019*: **Workshop "Analysis of extremes for continuous-time processes"**. Jussieu.

➢ *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.

➢ *2014/2015*: **Workshop "Risk theory"**. MODAL'X, Paris Nanterre.

➢ *05/2014*: **National Agency for Research project AMERISKA** "*Analyse Multivariée des Extrêmes et du RISQue Alimentaire*". See http://risksemester.ameriska.net/fr/home.

PRESENTATIONS

Conferences

1. *12/2018*: Conference "Statistique, mot et entropie", Caon. **Statistical study of the extremal behavior of regenerative Markov chains.**

2. *07/2018*: 12th International Vilnius Conference on Probability Theory, Vilnius. **Estimation in boundary regression models**.

3. *06/2018*: 4th ISNPS, Salerno. **Extremal behavior for a class of stochastic processes with application to risk theory**.

4. *05/2018*: 50th JDS organized by SFDS, Paris Saclay. **Estimation and testing problems in nonparametric regression with bounded support**.

5. *03/2018*: 6th Spring School "Structural Inference in Statistics", Spreewald. **Semi-parametric transformation boundary regression models**.

6. *06/2017*: 10th Extreme Value Analysis, TU Delft. **Regularly varying Markov chains and application to risk theory**.

7. *05/2017*: 49th JDS organized by SFDS, Avignon. **Regularly varying stochastic recurrence equations**.

8. *04/2017*: Conference "Entropie, Mots et Statistique", Reims. **Study of the extremal bahavior of stochastic processes involved in risk theory**.

9. *03/2017*: 7th RJS organized by SFDS, Porquerolles. **Extremal properties and risk indicators for dietary risk assessment models with heavy-tailed intakes**.

10. *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**.

11. *06/2016*: 3rd ISNPS. Palais des Glaces, Avignon. **A generalization of Breiman's lemma**.

12. *09/2015*: Eurobanking, Evergreen Business Center, Issy les Moulineaux. **Application of some statistical methods in the banking field**.

13. *08/2015*: StatMathAppli organized by INRA, Villa Clythia, Fréjus. **Extreme value statistics for general Markov chains**.

14. *12/2014*: Extreme Events in Finance by ESSEC, Abbaye de Royaumont. **Extreme values statistics for Markov chains with applications to Finance and Insurance.**

15. *06/2014*: 46th JDS, Rennes. **Statistical analysis of stochastic models in risk theory and dietary risk assessment**.

Seminars

1. *02/2019*: **TBD**. LMW, Versailles.
2. *11/2018*: **Parametric transformation in boundary regression models**. LMB, Besançon.
3. *06/2018*: **Risk theory and its applications**. SPST, Hambourg.
4. *03/2018*: **Risk indicators in non-life insurance mathematics**. IRA, 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 of Shot Noise Processes**. Inst. Math. Sciences, Copenhagen.
7. *02/2015*: **Multivariate regular variation theory and its applications**. LMR, Reims.
8. *04/2015*: **Extremes of 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 Conference Participations

➢ *05/2018*: "Rare events, Extremes and Machine Learning". Télécom ParisTech.
➢ *06/2017*: "Heavy Tails and Long Range Dependence". Télécom ParisTech.
➢ *02/2017*: "Statistics for Piecewise Determinsistic Markov Processes". Nancy.
➢ *05/2016*: "Dependence, Stability and Extreme". Toronto.
➢ *06/2015*: "9th Extreme Value Analysis conference". Ann Arbor.
➢ *06/2015*: "Mathematical Foundations of Heavy-Tailed Analysis". Copenhagen.
➢ *05/2015*: "Dependence, Limits Theorems and Applications". Institut Henri Poincaré. Paris.

TEACHING

2018-2019 (**Post Doc, Télécom Paristech**)
- ➢ *TP Machine learning.* Specialized Master Big Data.
- ➢ Statistics. Bachelor degree (BAD) Management (Paris Nanterre).

2016-2017 (**ATER, Paris Nanterre**)
- ➢ *Statistics.* BAD Psychology.
- ➢ *Analysis.* BAD Economics-Law.
- ➢ *Analysis.* BAD Economics-Management.

2015-2016 (**90 hours. Independent contractor position (ICP), URCA, Reims**)
- ➢ *Analysis* (60 hours). BAD Biology.
- ➢ *Quantitative tools* (30 hours). BAD Economics-Management.

2014-2015 (**210 hours. ICP, URCA, Reims**)
- ➢ *Analysis* (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. ICP, URCA, Reims**)
- ➢ *Analysis* (60 hours). BAD Mathematics.
- ➢ *Linear Algebra* (30 hours). BAD Economics-Management.
- ➢ *Geometry* (20 hours). BAD Physics.

2010-2013 (**Private lessons**)
- ➢ *Mathematics.* High and Middle school (8 hours a week). Company "Math Progress". Reims.
- ➢ *Physics.* Preparatory classes PCEM (2 hours a week). Reims.

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 on "Probability and Analysis". Bedlewo.
- ➢ *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.

SKILLS AND OTHER ACTIVITIES

Computing
- ➢ Proficient with statistical softwares: SAS, R, VBA and SPSS.
- ➢ Thorough knowledge: Python, Java, C++, Html, SQL, 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: Guitar, running, swimming, futsal and mountain biking.