Antoine Godichon-Baggioni

Curriculum vitæ

Research interests : Stochastic algorithms, Robust statistics, Functional Data Analysis, High Dimension, Clustering

Contact

Mail	Professionnal, *antoine.godichon@insa-rouen.fr*.
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Laboratory	Laboratoire de Mathématiques de l'INSA de Rouen.
Institution	Institut National de Sciences Appliquées de Rouen.
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Situation Actuelle

— Attaché Temporaire d'Enseignement et de Recherche (Lecturer) in Institut National des Sciences Appliquées Rouen Normandie
— Member of ANR-13-JS01-0001-01 MixStatSeq

Postes antérieures

2016–2017 **Post-doctoral position**, Institut de Mathématiques de Toulouse, dans le cadre de l'ANR "MixStatSeq".
Clustering of co-expressed genes based on RNA-Seq data

2013–2016 **PhD students**, Université de Bourgogne.

Formation

2013–2016 **PhD in Statistics**, *Stochastic algorithms for robust estimation in high dimension*, under the direction of Hervé Cardot and Peggy Cénac, Thesis supported on the 17th, June, 2016.
Composition of the jury :
— Hervé Cardot, *(Director)*, Université de Bourgogne
— Peggy Cénac, *(Director)*, Université de Bourgogne
— Antonio Cuevas, *(Referee)*, Universita Autónoma de Madrid
— Clément Dombry, *(Examiner)*, Université de Franche-Comté
— Anatoli Juditsky, *(Referee)*, Université de Grenoble
— Mariane Pelletier, *(Examiner)*, Université de Versailles
— Anne Ruiz-Gazen, *(President of the Jury)*, Université de Toulouse 1

2013 **Agregation of Mathematics**.

2012–2013 **Preparation for Agregation of Mathematics**, *Free candidate*.

2012 **CAPES of Mathematics**.

2010–2012 **Master's degree in Mathematics**, *University of Burgundy*.

2007–2010 **Bachelor's degree in Mathematics**, *University of Burgundy*.

Publications

Papers accepted in peer-reviewed journals

2018 **Godichon-Baggioni, A., Maugis-Rabusseau, C. and Rau, A.**, *Clustering transformed compositional data using K-means, with applications in gene expression and bicycle sharing system data*, A paraître dans Journal of Applied Statistics.

2017 **Godichon-Baggioni, A. and Portier, B.**, An averaged projected Robbins-Monro algorithm for estimating the parameters of a truncated spherical distribution, *Electronic Journal of Statistics, vol. 11, p. 1890-1927*.

2017 **Cardot, H. and Godichon-Baggioni, A.**, Fast Estimation of the Median Covariation Matrix with Application to Online Robust Principal Components Analysis, *TEST, vol 26, p.461–480*.

2017 **Cardot, H., Cénac, P. and Godichon-Baggioni, A.**, Online estimation of the geometric median in Hilbert spaces : non asymptotic confidence balls, *The Annals of Statistics, vol 45, p.591–614*.

2016 **Godichon-Baggioni, A.**, Estimating the geometric median in Hilbert spaces with stochastic gradient algorithms : L^p and almost sure rates of convergence, *Journal of Multivariate Analysis, vol. 146, p. 209.222*.

Submitted papers

2017 **Godichon-Baggioni, A., and Saadane, A.**, *On the rates of convergence of Parallelized Averaged Stochastic Gradient Algorithms*, soumis, http ://arxiv.org/abs/1710.07926.

2017 **Godichon-Baggioni, A.**, A Central Limit Theorem for averaged stochastic gradient algorithms in Hilbert spaces and online estimation of the asymptotic variance. Application to the Geometric Median and Quantiles, soumis, http ://arxiv.org/abs/1702.00931.

2016 **Godichon-Baggioni, A.**, L^p and almost sure rates of convergence of averaged stochastic gradient algorithms with applications to online robust estimation, soumis, http ://arxiv.org/abs/1609.05479 .

Packages

With Cathy Maugis-Rabusseau and Andrea Rau, *Contribution au package* ℝ `coseq`.

Talks in international conferences

December, 2015 **8th International Conference of the ERCIM**, *London*, *Recursive estimation of the geometric median and of the median covariation matrix in Hilbert spaces*.

September, 2015 **19th European Young Statisticians Meeting**, *Prague*, *Recursive estimation of the median covariation matrix in Hilbert spaces*.

December, 2014 **7th International Conference of the ERCIM**, *Pisa*, *Efficient recursive estimation of the geometric median in Hilbert spaces : new results*.

Talks in national conferences

June, 2017	**Journées de Statistiques**, *Avignon*, *Algorithmes stochastiques pour la statistique eobuste en grande dimension*.
April, 2016	**Colloque Jeunes Probabilistes et Statisticiens**, *Les Houches*, *Estimation récursive de la Median Covariation Matrix dans les espaces de Hilbert*.
November, 2015	**15-ème Forum des Jeunes Mathématicien-ne-s**, *Lille*, *Estimation récursive de la Median Covariation Matrix dans les espaces de Hilbert*.

Other talks

Février 2018	**Séminaire de Statistique**, *Université de Rennes*. Algorithmes stochastiques pour la statistique robuste en grande dimension
Février 2018	**Séminaire AgroParisTech**, *MIA Paris*. Clustering compositional data using K-means, with applications in gene expression and bicycle sharing system data
Janvier 2018	**Séminaire étudiant**, *Université de Bourgogne*. Clustering compositional data and applications
Janvier 2018	**Groupe de travail de Statistique**, *Université de Rouen*. Rates of convergence of stochastic gradient algorithms : locally strongly convex objective
Janvier 2018	**Séminaire Probabilités et Statistique**, *Université de Lorraine*. Algorithmes stochastiques pour la statistique robuste en grande dimension
Novembre 2017	**Séminaire Parisien de Statistique**, *Institut Henri Poincarré*. Algorithmes stochastiques pour la statistique robuste en grande dimension
Juin 2017	**Séminaire Satistique Probabilités Optimisation et Controle**, *Université de Bourgogne*. Rates of convergence of stochastic gradient algorithms : locally strongly convex objective
Avril 2017	**Séminaire étudiant**, *Université de Bourgogne*. Clustering transformed compositional data using K-means, with applications in gene expression and bicycle sharing system data
Mars, 2017	**Séminaire de Statistique**, *Institut de Mathématiques de Toulouse*. Algorithmes stochastiques pour la statistique robuste en grande dimension.
Décembre, 2016	**Réunion de l'ANR MixStatSeq**, *Université Paris-Sud*. Classification pour les données RNA-seq.
November, 2016	**Séminaire Probabilités et Statistique**, *Université Lille 1*. Recursive estimation of the Median Covariation Matrix in Hilbert spaces with applications to Online Robust PCA.
October, 2016	**Séminaire étudiant**, *Université de Bourgogne*. Rates of convergence of averaged stochastic gradient algorithms in Hilbert spaces : locally strongly convex objective
May, 2016	**17-ème Journées de l'Ecole Doctorale Carnot-Pasteur**, *Université de Franche-Comté*. Estimation récursive de la Median Covariation Matrix dans les espaces de Hilbert
February, 2016	**Student seminar**, *Université de Bourgogne*, *Introduction to stochastic algorithms*.
January, 2016	**Probabilities and Statistics seminar**, *Université de Franche-Comté*, *Estimation récursive de la Median Covariation Matrix dans les espaces de Hilbert*.

September, 2015	**Student seminar**, *Université de Bourgogne*, *Estimation récursive de la Median Covariation Matrix dans les espaces de Hilbert*.
May, 2015	**16-èmes Journées de l'Ecole Doctorale Carnot-Pasteur**, *Dijon*, *Estimation de la médiane géométrique à l'aide d'un algorithme de gradient stochastique et de son moyenné*.
November, 2014	**Statistics, Probabilities, Optimization and Control seminar** , *Université de Bourgogne*, *Estimation récursive de la médiane géométrique dans les espaces de Hilbert : boules de confiance*.
October 2014	**Student seminar**, *Université de Franche-Comté*, *Efficient recursive estimation of the geometric median in Hilbert spaces : new results*.
September 2014	**Student seminar**, *Université de Bourgogne*, *Efficient recursive estimation of the geometric median in Hilbert spaces : new results*.

Teaching activities

Nowadays (192 hours)

2017–2018	**Practical and tutorial class of random signal processing**, *Third year*, *Computer science*.
2017–2018	**Practical and tutorial class of statistics**, *Third year*, *Computer science*.
2017–2018	**Practical and tutorial class of statistics**, *Third year*, *Mathematics*.
2017–2018	**Courses class of statistics**, *Fourth year*, *Mathematics*.
2017–2018	**Practical and tutorial class of statistics**, *Fourth year*, *Mathematics*.
2017–2018	**Practical and tutorial class of numerical analysis**, *Third year*, *Computer science*.
2017–2018	**Training class of mathematics**, *Third year*, *Computer science*.

In Toulouse

2016–2017	**Co-supervision of a mentored project**, *Fifth year, INSA Toulouse*, *Engineering, Mathematics and Modeling*. Subject : "Classification of co-expressed genes from RNA-seq data"

During the Thesis (192 hours)

2015–2016	**Practical of programming in R for inferential statistics**, *Master*, Mathematics.
2015–2016	**Tutorial class of algebra**, *Second year*, Mathematics.
2014–2016	**Courses class of data analysis**, *First year*, Biology.
2014–2015	**Tutorial class of analysis**, *First year*, Mathematics.
2013–2014	**Tutorial class of mathematics**, *First and Second Year*, Economy.
2013–2014	**Tutorial class of mathematics**, *First year*, Economy.

Large audience presentation

2016	**Mathematics week**, *Dijon*, Plus petite surfaces et bulles de savon.
2014, 2016	**Open house day of the University of Burgundy**, *Dijon*, Surfaces minimales et bulles de savon.
2015	**Open house day of the University of Burgundy**, *Dijon*, Programation et fractales.

Administrative tasks

2015–2016 **Elected at the Council of the Institut de Mathématiques de Bourgogne.**
2015–2016 **President of the association of Phd students in mathematics of Dijon.**
2011–2012 **Elected at the Administrative Board of the University of Burgundy.**
2010–2012 **Elected at the Administrative Board of the CROUS of Burgundy.**

Languages

English Read, Written, Spoken
Spanish Scholar

Computing skills

R, LATEX, Scilab, Matlab

References

— **Hervé Cardot**, Professor, *Université de Bourgogne*, herve.cardot@u-bourgogne.fr
— **Peggy Cénac**, Senior lecturer, *Université de Bourgogne*, peggy.cenac@u-bourgogne.fr
— **Cathy Maugis-Rabusseau**, Senior lecturer, *INSA de Toulouse*, maugis@insa-toulouse.fr
— **Bruno Portier**, Professor, *INSA de Rouen*, bruno.portier@insa-rouen.fr