Geoffrey Decrouez
Assistant Professor in Data Analysis
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Born in Dunkerque (France)
Nationality: French/Australian

Education

2005 to 2009 **PhD in Mathematics and Statistics**
Title: *Generation of Multifractal Signals with Underlying Branching Structure.*
Department of Mathematics and Statistics, The University of Melbourne (Australia). Degree awarded under cotutelle arrangement with Grenoble, Images, Parole, Signal, Automatique lab (Gipsa-Lab), Department Signals and Images in Grenoble (France).

2004 to 2005 **Master degree in Signal and Image processing**
Grenoble Institute of Technology (INPG), leading French school in engineering. *First class honours.*

2004 to 2005 **Exchange program**
Department of Electrical Engineering, The University of Melbourne.
Major in Signal and Image processing.

2002 to 2005 **Degree in Electrical Engineering**
École Nationale Supérieure d'Ingénieurs Électriciens de Grenoble (ENSIEG), leading French school, part of INPG. Three-year program with specialization in signal processing and systems. *First class honours.*

2001 to 2002 **Intensive courses in mathematics and physics for the competitive entrance exams for French Grandes Ecoles**
Lycée Jean Bart, Dunkerque (France).

Research and Teaching

2018 **Guest Lecturer**
Machine Learning Algorithms, part of the Master's level program in Data Analysis
Yandex School of Data Analysis, Moscow (Russia).

Since 2014 **Assistant Professor in Data Analysis**
School of Data Analysis and Artificial Intelligence, Department of Computer Science, National Research University, Higher School of Economics, Moscow (Russia).

2011 to 2014 **Research fellow**
Research in theoretical and applied statistics, with applications in biosecurity.
Department of Mathematics and Statistics, The University of Melbourne, and the Centre of Excellence for Biosecurity Risk Analysis (CEBRA).

2009 to 2011 **Research fellow**
Research in stochastic modeling, with applications in neural networks and finance.
Department of Mathematics and Statistics, The University of Melbourne.

Refereed full papers

14. Braunsteins, P., Decrouez, G. and Hautphenne, S. (2018). A pathwise approach to the extinction of branching processes with countably many types. To appear in *Stochastic Processes and their Applications.*

13. Decrouez, G., Grabchak M., and Paris, Q. (2018). Finite sample properties of the mean occupancy counts and probabilities. To appear in *Bernoulli*, **24**(3), 1910–1941.

12. Decrouez, G. and Robinson, A. (2017). Bias corrected estimation in continuous sampling plans. To appear in *Risk Analysis: An International Journal*, **38**(1), 177–193.

11. Decrouez, G. and Robinson, A. (2016). Measuring the inspectorate: point and interval estimates for performance indicators. *Journal of Agricultural, Biological, and Environmental Statistics.* **21**(2), 382–401.

10. Decrouez, G., Hambly, B. et Jones, O. (2015). The Hausdorff spectrum of a class of multifractal processes. *Stochastic Processes and their Applications.* **125**(4), 1541–1568.

9. Borovkov, K., Decrouez, G. and Gilson, M. (2014). On the stationary distribution of neural networks. *Journal of Applied Probability*, **51**(3), 837–857.

8. Decrouez, G. and Hall, P. (2014). Split-sample methods for constructing confidence intervals for binomial and Poisson parameters. *Journal of the Royal Statistical Society: Series B*, **76**(5), 949–975.

7. Decrouez, G. and Robinson, A. (2013). Time series models for border inspection data. *Risk Analysis: An International Journal*, **33**(12), 2142–2153.

6. Decrouez, G. and Hall, P. (2013). Normal approximation and smoothness for sums of means of lattice-valued random variables. *Bernoulli*, **19**, 1268–1293.

5. Decrouez, G. and Jones, O.D. (2012). A class of multifractal processes constructed using an embedded branching process. *Annals of Applied Probability*, **22**(6), 2357–2387.

4. Borovkov, K. and Decrouez, G. (2012). Ornstein-Uhlenbeck type processes with heavy tails. *Theory of Probability and its Applications*, **57**(3), 396–418.

3. Decrouez, G. and Robinson, A. (2012). Confidence intervals for the weighted sum of two independent binomial proportions. *Australian and New Zealand Journal of Statistics*, **54**(3), 281–299.

2. Borovkov, K., Decrouez, G. and Hinz, J. (2011). Jump-diffusion modeling in emission markets. *Stochastic Models*, **27**(1), 50–76.

1. Decrouez, G., Amblard, P.-O., Brossier, J.-M. and Jones, O.D. (2009). Galton-Watson iterated function systems. *Journal of Physics A: Mathematical and Theoretical*, **42**, 095101.

Refereed conference publications

9. Decrouez, G. and Amblard, P.-O. (2015). Crossing-tree partition functions. European Signal Processing Conference (EUSIPCO). Nice (France). *Invited session.*

8. Decrouez, G. and Amblard, P.-O. (2015). Analysis of H-sssi processes using the crossing tree: an alternative to wavelets. 40th International Conference on Acoustics, Speech, and Signal Processing (ICASSP). Brisbane (Australia).

7. Decrouez, G., Amblard, P.-O. and Jones, O.D. (2013). Estimation of the multifractal spectrum using the crossing tree. 24nd GRETSI. Congress in signal and image processing. Brest (France).

6. Decrouez, G. and Hall, P. (2013). Confidence intervals for means of lattice-valued random variables constructed using split-sample methods. International Seminar on Stability Problems for Stochastic Models. Moscow (Russia).

5. Decrouez, G. and Hall, P. (2012). Asymptotic expansions and Roth's theorem. International Conference in Probability Theory and its Applications. Moscow (Russia).

4. Decrouez, G. and Jones, O.D. (2009). Une nouvelle classe de signaux multifractals possédant une structure de branchement sous-jacente. 22nd GRETSI. Congress in signal and image processing. Dijon (France).

3. Decrouez, G., Amblard, P.-O., Brossier, J.-M. and Jones, O.D. (2007). Systèmes de fonctions itérés aléatoires sur des arbres de Galton-Watson. 21st GRETSI. Congress in signal and image processing. Troyes (France).

2. Decrouez, G., Amblard, P.-O., Brossier, J.-M. and Jones, O.D. (2007). Galton-Watson Iterated Function Systems. 32nd International Conference on Acoustics, Speech, and Signal Processing (ICASSP). Honolulu (United States).

1. Decrouez, G., Amblard, P.-O. and Brossier, J.-M. (2006). A Wavelet analysis of random iterated function systems. 7th IMA Conference on Mathematics in Signal Processing. Cirencester (United Kingdom).

Conference talks

10. Decrouez, G., Hall P. (2016). Normal approximation for sums of means of lattice-valued random variables. Conference in Honour of Professor Peter Hall. Melbourne (Australia). *Invited speaker.*

9. Decrouez, G., Grabchak M., and Paris, Q. (2016). Finite sample properties of the mean occupancy counts and probabilities. World Congress in Probability and Statistics. Toronto (Canada).

8. Decrouez, G., Hall P., and Robinson, A. (2014). Estimation of the approach rate from border inspection data. Australian and New Zealand Industrial and Applied Mathematics (ANZIAM). Rotorua (New Zealand).

7. Decrouez, G., and Robinson, A. (2013). Estimation of the approach rate in continuous sampling plans. Society for Risk Analysis - Australia and New Zealand (SRA-ANZ). Canberra (Australia).

6. Decrouez, G., Hall, P. and Robinson, A. (2012). The bootstrap and Roth's theorem. International Workshop on Applied Probability. Jerusalem (Israel).

5. Decrouez, G., Borovkov, K. and Gilson, M. (2012). On the ergodicity and the stationary distribution of a stochastic neuron network. Australia and New Zealand Applied Probability Workshop. Auckland (New Zealand).

4. Decrouez, G. and Borovkov, K. (2011). Jump-diffusion modeling in emission markets. 3rd Australian Actuarial Education and Research Symposium. Melbourne (Australia).

3. Decrouez, G. and Jones, O.D. (2008). Multifractal Embedded Branching Processes (MEBP). 7th World Congress in Probability and Statistics. Singapore.

2. Decrouez, G. and Jones, O.D. (2008). A new class of multifractal processes. 4th Australian Postgraduate Workshop on Stochastic Processes and Modelling. Adelaide (Australia). Award for best student talk.

1. Decrouez, G., Amblard, P.-O., Brossier, J.-M. and Jones, O.D. (2007). Poster on Galton-Watson Iterated Function Systems. 3rd Australian Postgraduate Workshop on Stochastic Processes and Modelling. Sydney (Australia).

Seminar talks

7. Finite sample properties of the mean occupancy counts and probabilities. Ecole Polytechnique Féderale de Lauzanne (Switzerland, 2016)

6. On the uses of the crossing-tree for the construction and analysis of multifractal processes. Moscow State University (Russia, 2014)

5. On scale invariance, multifractal formalism, and their applications. National Research University, Higher School of Economics, Moscow (Russia, 2014)

4. Confidence intervals for lattice-valued random variables. La Trobe University, Melbourne (Australia, 2013).

3. Edgeworth expansion of the distribution of the sum of sample means of lattice-valued random variables. Gipsa-lab, Grenoble (France, 2012).

2. Asymptotic expansions for sums of means of lattice-valued random variables. Moscow State University (Russia, 2012).

1. On stationary distributions of neuron networks. University of Melbourne (Australia, 2011).

Languages

French	native language
English	fluent
Russian	intermediate level
German	beginner level
Spanish	beginner level

Computer Skills

OS	Mac, Windows, Linux
Languages	R, Python, Matlab, Mathematica, Maple
Software	LaTeX, Microsoft Office (Word, Excel, PowerPoint)