

Edith Gabriel | Curriculum vitae

Laboratory of Mathematics, Avignon University, France
+33 490 843 827 / +33 686 250 907
edith.gabriel@univ-avignon.fr

Born: 21th August 1977, Marseille, France - 2 children

Career

- 2014 – 2016 **Long term visitor**, INRA, Biostatistics and spatial processes unit.
- 2013 – 2014 **Department head** of the department Statistics and Decision Support Systems, Institute of Technology, Avignon University, France.
- 2008 – 2012 **Course director** of the department Statistics and Decision Support Systems, Institute of Technology, Avignon University, France.
- Since 2007 **Senior lecturer in Statistics**, Avignon University, France.
- 2005 – 2007 **Research Associate**, Department of Mathematics and Statistics, Lancaster University, UK.
- 2004 – 2005 **Lecturer in Statistics**, Montpellier University.
- 2001 – 2004 **D. Phil.**, Biostatistics and spatial processes unit, INRA, Avignon, France
- 2001 – 2004 **Lecturer in Statistics**, IUP Avignon, France.

University degrees, Awards

- 2014 – 2016 **Long term visitor**, INRA, Biostatistics and spatial processes unit.
- 2014 **Habilitation Thesis**, Avignon University, France.
Title: « *Understanding and modelling spatial and spatio-temporal stochastic processes* » Defended on 9th December 2014. Jury: A. Bar-Hen (rap.), L. Bel (prés.), J-F. Cœurjolly (exam.), M. Genton (rap.), C. Lantuéjoul (exam.), R. Senoussi (exam.) and C. Thomas-Agnan (rap.).
- 2010 – 2014 Four years bonus Awards of Scientific Excellence.
- 2006 Marie-Jeanne Laurent-Duhamel prize of the French Statistical Society.
- 2004 **Ph.D by Thesis**, Detecting zones of abrupt change in spatial data and applications to precision agriculture, Montpellier University, France.
- 2001 Master of Statistics, Montpellier University, France.
- 1999 Bachelor of Mathematics, Montpellier University, France.

Scientific activities

Scientific committees (SC) and organizing committees (OC)

- Journées de Statistique de la SFdS 2017 (treasurer, OC)
- International Society for Non-Parametric Statistics Conference 2016 (OC)
- Spatial Accuracy conference 2016 (PC)
- Spatial Statistics conference 2015 (SC + OC).
- Workshop on Stochastic Weather Generators 2014 (OC).
- Workshop on Spatial Statistics and Image Analysis in Biology (SSIAB) since 2013 (SC).
- Avignon-Marseille statistics seminar 2013 - 2015 (SC + OC).
- Workshop SSIAB 2012 (OC).
- STID-SFdS days 2010 - 2014 (SC + OC).
- Statistics seminar of the LMA 2009 – 2014 (SC + OC).

Research projects

- ANR AgrobioSE 2014-2018.
- ANR ROLSES 2009-2013.
- Veterinary Training and Research Initiative 2005-2009.

Member of CNU 26 since 2014.

Alternate member of Scientific committee: INRA MIA department, since 2016.

Member of Board: Avignon Institute of Technology, 2008 - 2012.

Member of Scientific committee: Avignon Institute of Technology, 2007 – 2009.

Member of editorial board: *Spatial Statistics* since 2015.

Reviewer for *Journal of the American Statistical Association*, *Journal of the Royal Statistical Society Series A and B*, *Computational Statistics and Data Analysis*, *Journal of Statistical Software*, *Statistica Neerlandica*, *Scandinavian Journal of Statistics*, *Methodology and Computing in Applied Probability*, *Spatial Statistics*, *Mathematical Geoscience*, *Papers in Applied Geography*, *R Journal*, *Metron*, *BioMed Central*, *Stat and Les annales de l'ISUP*.

Research student supervision

- PhD.: S. Kharbach, since 2015, M. El Asri 2010 – 2014
- MPhil: S. Kharbach (2015).
- MSc: K. Agboto (2015), N. Van Wymeersch (2015).
- ENSAI : Y. Esposito (2014).
- HND: S. Berthlot (2015), C. Boetti (2014), C. Nouguier (2014), J. Perez (2014).

R package: stpp (development and maintenance)

Publications

Papers in Journals and Book chapters

- [1] **Gabriel E.**, Bonneu F., Monestiez P., Chadoëuf J. (2016) Adapted kriging to predict the intensity of partially observed point process data. *Spatial Statistics*, to appear.
- [2] **Gabriel E.** (2016) Spatio-temporal point pattern analysis and modelling. *Encyclopedia of GIS, 2nd Edition*. In press.
- [3] El Asri M., Blanke D., **Gabriel E.** (2016) Weighted M-estimators for multivariate clustered data. *Statistics and Probability Letters*, in press.
- [4] **Gabriel E.** (2014) Estimating second-order characteristics of inhomogeneous spatio-temporal point process: influence of edge correction methods and intensity estimates. *Methodology and Computing in Applied Probability*, 16(1), 411--431.
- [5] **Gabriel E.**, Rowlingson B., Diggle P. (2013) stpp: An R package for plotting, simulating and analysing Spatio-Temporal Point Patterns. *Journal of Statistical Software*, 53(2), 1--29.
- [6] Blanke D., **Gabriel E.**, Josselin D. (2012). Comparing new adaptive and robust estimators of location. *Les annales de l'ISUP*, 56, 65--86.
- [7] **Gabriel E.**, Allard D., Bacro J-N. (2011) Estimating and testing Zones of Abrupt Change for spatial data. *Statistics and Computing*, 21, 107-120.
- [8] Diggle P., **Gabriel E.** (2010) Spatio-temporal point processes. *Handbook of Spatial Statistics*. Chapman and Hall/CRC Handbooks of Modern Statistical Methods, pp 449-461.
- [9] **Gabriel E.**, Wilson D., Leatherbarrow H., Cheesbrough J., Gee S., Bolton E., Fox A., Fearnhead P., Hart A., Diggle P. (2010) Spatio-temporal epidemiology of *Campylobacter jejuni* enteritis, in an area of Northwest England, 2000-2002. *Epidemiology and Infection*, 138, 1384-1390.
- [10] **Gabriel E.**, Diggle P. (2009) Second-order analysis of inhomogeneous spatio-temporal point process data. *Statistica Neerlandica*, 63, 43-51.
- [11] Wilson D., **Gabriel E.**, Leatherbarrow A., Cheesbrough J., Gee S., Bolton E., Fox A., Hart A., Diggle P., Fearnhead P. (2009) Rapid evolution and the importance of recombination to the gastro-enteric pathogen *Campylobacter jejuni*. *Molecular Biology and Evolution*, 26(2), 385-397.
- [12] Wilson D, **Gabriel E.**, Leatherbarrow A., Cheesbrough J, Gee S., Bolton E., Fox A., Fearnhead P., Diggle P. (2008) Tracing the source of *Campylobacteriosis*. *PLoS Genetics*, 4(9):e1000203.

- [13] **Gabriel E.**, Allard D. (2008) Evaluating the sampling pattern when detecting zones of abrupt change. *Environmental and Ecological Statistics*, 4, 469-489.
- [14] **Gabriel E.**, Allard D., Guérif M., Mary B. (2007) Detecting zones of abrupt change in soil data, with an application to an agricultural field. *European Journal of Soil Science*, 58, 1273-1284.
- [15] **Gabriel E.** (2007) Détection de changements abrupts dans le gradient d'un champ gaussien et application aux sciences de l'environnement. *Journal de la Société Française de Statistique et Revue de Statistique Appliquée*, 148, 3-28.
- [16] Allard D., **Gabriel E.** (2007) Détection de zones de changement abrupt pour des variables non permanentes : vers la définition de zones homogènes ? Dans *Agriculture de Précision*, Quae, Versailles, pp 165-176.

Papers in conference proceedings

- [17] **Gabriel E.**, Diggle P. (2009) Second-order analysis of the spatio-temporal distribution of human campylobacteriosis in Preston, Lancashire, Dans Atkinson, P.M., Lloyd, C.D. (Eds.). *geoENV VII, Geostatistics for Environmental Applications*, pp. 99-106.
- [18] **Gabriel E.**, Allard D. (2005) Assessing the power of zones of abrupt change test detection, *Seventh International Geostatistical Congress*, Banff, Canada, pp. 1103-1008, Kluwer Academic Publisher.
- [19] **Gabriel E.**, Allard D., Bacro J.N. (2004) Detecting zones of abrupt change: application to soil data, dans X. Sanchez-vila, J. Carrera and R. Froidevaux (Eds.) *geoENV IV Geostatistics for Environmental Applications*, pp. 437-448, Kluwer Academic Publisher

Papers submitted for publication

- [20] Gaba S., **Gabriel E.**, Chadœuf J., Bonneau F., Gauvrit C., Bretagnolle V. (2015) Paying the bill twice? Weed control does not increase wheat yield, but eliminate rare plant species.
- [21] Toffin E., Louis M., **Gabriel E.**, Hasbrouck S., Molenberg J-M., Grégoire J-C. (2015) Adult *Ips typographus* iteratively optimize their hinterland when colonizing a weakened host.

Misc

- [22] El Asri M., Blanke D., **Gabriel E.** (2014) Weighted M-estimators for multivariate clustered data: theory and simulation results. arXiv:1412.5136.
- [23] **Gabriel E.** (2014) Comprendre et modéliser des phénomènes stochastiques en statistique spatiale et spatio-temporelle. Mémoire d'Habilitation à Diriger des Recherches de l'Université d'Avignon et des Pays de Vaucluse (111 pages).
- [24] **Gabriel E.**, Bonneau F., Monestiez P., Chadœuf J. (2014) Predicting the local intensity of partially observed data from a revisited kriging for point processes. arXiv:1409.6441
- [25] **Gabriel E.** (2013) Estimating second-order characteristics of inhomogeneous spatio-temporal point processes: influence of edge correction methods and intensity estimates. <http://arxiv.org/abs/1304.7178>
- [26] Allard D., **Gabriel E.**, Bacro J.N (2005) Estimating and testing zones of abrupt changes for spatial data. *Research report n°2*, <http://ciam.inra.fr/biosp/RR2005>.
- [27] **Gabriel E.** (2004) Détection de zones de changement abrupt dans des données spatiales et application à l'agriculture de précision. Thèse de l'Université Montpellier II

Talks

Conferences

- [1] Gabriel E., Chadoeuf J. Geostatistics for point processes: predicting the intensity of partially observed point process data. *Stochastic Geometry and its Applications Conference*, Nantes, France, April 2016.
- [2] Gabriel E., Bonneau F., Monestiez P., Chadoeuf J. Predicting the local intensity of partially observed data from a revisited kriging for point processes. *Spatial Statistics Conference*, Avignon, France, June 2015.
- [3] Gabriel E., Bonneau F., Monestiez P., Chadoeuf J. Prédire l'intensité locale d'un processus ponctuel partiellement observé. *xxxviiièmes Journées de Statistique*, Lille, France, June 2015.
- [4] Gabriel E., Bonneau F., Monestiez P., Chadoeuf J. Prédire l'intensité locale d'un processus ponctuel partiellement observé : Application à l'estimation de la distribution d'espèces en écologie. *Congrès SMAI*, Les Karellis, France, June 2015 **(invited)**
- [5] Gabriel E., Chadoeuf J. Defining a variographic approach from the characteristics of a point process to estimate and predict the local intensity of partially observed data. *10th French-Danish Workshop on Spatial Statistics and Image Analysis in Biology*, Aalborg, Denmark, May 2014.
- [6] Gabriel E., Bonneau F. Modelling spatio-temporal patterns of forest fires. *10th French-Danish Workshop on Spatial Statistics and Image Analysis in Biology*, Aalborg, Denmark, May 2014.
- [7] Gabriel E. Spatio-temporal point process data: analysis and simulation. *11th European Congress of Stereology and Image Analysis*, Kaiserslautern, Germany, July 2013 **(invited)**.
- [8] Gabriel E. Processus ponctuels spatio-temporels : analyse et simulations. *xxxvèmes Journées de Statistique*, Toulouse, France, May 2013.
- [9] Gabriel E. Spatio-temporal point process data: analysis and simulation. *Spatial Statistics Conference*, Miami, USA, December 2012 **(invited)**.
- [10] Gabriel E. Représentation, analyse et simulation de processus ponctuels spatio-temporels. *1ères Rencontres R*, Bordeaux, France, July 2012
- [11] Gabriel E. Estimating second-order characteristics of spatio-temporal point processes. *7th International Conference on Stereology, Spatial Statistics and Stochastic Geometry*, Prague, Czech Republic, June 2012 **(invited)**.
- [12] Gabriel E. Introduction à la statistique spatiale. *xxxiiièmes Journées de Statistique*, Marseille, France, May 2010. **(invited)**
- [13] Gabriel E., Diggle P. Second-order analysis of human campylobacteriosis. *7th European Conference on Geostatistics for Environmental Applications*, Southampton, England, September 2008.
- [14] Gabriel E., Diggle P. Analyse spatio-temporelle de données ponctuelles agrégées : application à l'épidémiologie. *xxxixèmes Journées de Statistique*, Angers, France, June 2007.
- [15] Gabriel E., Diggle P., Wilson D., Leatherbarrow H., Fox A. Spatio-temporal and genetic epidemiology of *Campylobacter jejuni* in Lancashire. *4th North West Microbiology meeting*, Manchester, England, June 2007.
- [16] Gabriel E., Diggle P. Variation spatio-temporelle des cas de campylobactériose dans le secteur de Preston, *Journées MAS de la SMAI*, Lille, France, September 2006.
- [16] Gabriel E. Détection de zones de changement abrupt dans des données spatiales. *xxxviiièmes Journées de Statistique*, Clamart, France, May 2006 **(invited)**
- [17] Gabriel E., Allard D. Estimating and testing zones of abrupt change for spatial data, *Séminaire Européen de Statistique - Statistics of Spatio-Temporal Systems*, Bernried, Germany, December 2004.
- [18] Gabriel E., Allard D. Assessing the power of zones of abrupt change test detection, *Seventh International Geostatistical Congress*, Banff, Canada, September 2004.
- [19] Gabriel E., Allard D. Detecting zones of abrupt change for spatial data, *5th French-Danish Workshop on Spatial Statistics and Image Analysis in Biology*, Saint Pierre de Chartreuse, France, May 2004.
- [20] Gabriel E., Allard D. Puissance d'un test de détection de zones de changement abrupt dans le plan, *xxxvièmes Journées de Statistique*, Montpellier, France, May 2004.

- [21] Gabriel E., Allard D., Bacro J.N. Detecting zones of abrupt change: application to soil data, *4th European Conference on Geostatistics for Environmental Applications*, Barcelone, Spain, November 2002.
- [22] Allard, D., Gabriel E., Bacro J.N. Détection de ruptures dans un champ gaussien : application à l'agriculture de précision, *xxxivèmes Journées de Statistique*, Nantes, France, May 2001.

Seminars

- [23] *Predicting the local intensity of partially observed data from a revisited kriging for point processes*. Sète, France, June 2015.
- [24] *Autour des processus ponctuels spatio-temporels*. Toulouse, France, January 2014.
- [25] *Analyse spatio-temporelle des cas de campylobactériose dans le secteur de Preston*. Bordeaux, March 2007.
- [26] *Détection de zones de changement abrupt dans des données spatiales*. Paris, France, March 2006.
- [27] *Spatio-temporal pattern of human Campylobacter isolates in the Preston area*. Leahurst, UK, January 2006.
- [28] *Détection de zones de changement abrupt dans des données spatiales*. Orsay, France, January 2005.
- [29] *Détection de zones de changement abrupt dans des données spatiales*. Toulouse, France, October 2004.
- [30] *Détection de zones de changement abrupt dans des données spatiales*. Montpellier, France, June 2004.
- [31] *Détection de zones de changement abrupt dans des données spatiales*. Grenoble, France, June 2004.
- [32] *Calcul de la puissance dans un test de détection de ruptures dans le plan*. Paris, France, July 2003.

Teaching and administrative activities

Department of Statistics and Decision Support Systems, Institute of Technology, Avignon University, France

- Head of department 2013 - 2014.
- Course director 2008 - 2012.
- Responsible for HND Internships 2008 - 2012.

Avignon University

- Pedagogical follow-up of about forty internships (HND).
- Teaching: (hours per year)

Year	2001-02	2002-03	2003-04	2004-05	2007-08	2008-09*	2009-10	2010-11	2011-12*	2012-13	2013-14
Teaching hours	56h	52h	28h	96h	252.5h	196.5h	223.5h	329h	124h	192h	214.5h
Formation	L2 Info		L3 Math/MASS		L1-L2 Stat		L1-L2 Stat, ED		L1-L2 Stat		L1-L2 Stat, ED

*year including a maternity leave (96h statutory hours of service)