

## CV of Jérôme Saracco (49 years old) – September 2018

Professor (exceptional class) in applied mathematics (section CNU 26, research field: "Statistics"), Bordeaux INP (Bordeaux Institute of Technology).

Department Head of Studies of Ecole Nationale Supérieure de Cognitique (ENSC - Bordeaux INP).

Deputy Director of the Institute of Mathematics of Bordeaux (IMB), UMR CNRS 5251.

Team leader of the "Probability and Statistics" team of the IMB from 2010 to 2015.

Member of the CQFD project team of Inria Bordeaux - Sud-Ouest since 2008.

Member of the "OptimAI" team of the IMB since 2015.

Vice-president of the French Society of Statistics (SFdS) from 2014 to 2016.

Elected member of the board of the SFdS.

Elected member of the CNU 26 from 2011 to 2015.

### Contact information:

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### Education:

- 1988-1990: Two-year university degree in science (DEUG MMPI: Mathématiques, Mécanique, Physique, Informatique), University Paul Sabatier (Toulouse, France)
- 1990-1993: Magistère d'économiste statisticien, University Paul Sabatier (Toulouse) & University Toulouse 1, France
- 1990-1991: Bachelor's degree in Economics (Licence d'économie), University Toulouse 1 (France)
- 1991-1992: Master's Degree in Econometrics (Maîtrise d'économétrie), University Toulouse 1 (France)
- 1992-1993: Post graduate degree (1 year) following my master (DEA) in applied mathematics (statistics), University Paul Sabatier (Toulouse, France)
- 1993-1996: Ph.D in Statistics at the University Paul Sabatier (Toulouse, France)
- 2003: HDR (ability to conduct researches) in Biostatistics, University Montpellier 2 (France)

### Work experience at university:

- 1996 – 1997: ATER at the University Toulouse 1
- 1997 – 2004: Lecturer (MCF) at the University Montpellier 2
- 2004 – 2006: Professor at the University of Burgundy
- 2006 – 2010: Professor at the University Montesquieu Bordeaux 4
- 2010 – ... : Professor at Bordeaux INP (assigned to ENSC)

### Current research topics:

My research focuses on statistical modeling, multidimensional statistics and applied statistics. A central point of my research topics concerns the reduction of the dimension (for example around SIR: sliced inverse regression approaches) in order to better visualize, model and predict. I am also interested in the nonparametric estimation of conditional quantiles, in the modeling of dependability phenomena by stochastic processes, in applications in medical imaging, ... My works concern both not only theoretical results, but also the numerical implementation of the developed models or methodologies through R packages. I am also greatly interested in real applications in the context of multidisciplinary collaborations (biologists, doctors, psychologists, ...), industrial contracts or ANR. My works appear as useful bricks for the development of artificial or augmented intelligence in many scientific fields. Currently, I co-supervise two Ph.D theses on themes from medicine (creation of an evolutionary brain atlas of functional regions, longitudinal data analysis applied to HIV and Ebola vaccine trials).

### Recent ANR in which I participated:

- Adapt'eau (2011-2015): Adaptation to Variations of Hydrological Regimes (low-floods) in the Fluvio-Estuarine Environment of the Garonne-Gironde. Potentialities, testing and governance of Adaptation Options.
- IMMORTEEL (2010-2013): Impacts of Metallic and ORganic contaminations of the Gironde and St Lawrence systems on two Threatened species, the European and American EELs.

### Examples of recent industrial contracts:

1. Accompanying contracts of theses Cifre: Thalès optronique (2010-2013), Lyonnaise des eaux (2011-2014, 2017-2021).

### PhD theses currently or recently supported:

2. October 2018 - October 2021: Alexandre Conanec (University of Bordeaux). "Statistical modulation and optimization of multiblockdata: factors of variation modeling in the management of trade-offs between different datasets", Bordeaux Sciences Agro grant and Regional Council of Nouvelle Aquitaine grant, co-supervision with Marie-Pierre Ellies-Oury (35%, Bordeaux Sciences Agro) and Marie Chavent (30, University of Bordeaux)

3. September 2017 - September 2020: Loïc Labache (University of Bordeaux). "Creation of an evolutionary brain atlas of functional regions defined from a cohort of 297 subjects who performed 20 cognitive tasks in fMRI", CEA grant, co-supervision with Marc Joliot (50%, University of Bordeaux & CEA).
4. September 2016 - September 2019: Hadrien Lorenzo (University of Bordeaux). "Longitudinal data analysis applied to HIV and Ebola vaccine trials", Inria - Inserm "Digital Medicine" grant, co-supervision with Rodolphe Thiébaud (50%, University of Bordeaux).
5. December 2014 - January 2018: Ines Jlassi (University of Monastir, Tunisia). "Contribution to dimension reduction in regression and to nonparametric estimation of conditional quantiles", Tunisian grant, co-supervision with Leila Ben Abdelghani (30%, Faculty of Sciences of Monastir).
6. October 2012 - October 2015: Isabelle Charlier, "Optimal quantization and conditional quantiles", FNRS grant, co-supervision between ULB and UBx1, co-supervision with D. Paindaveine (50%, ULB)
7. November 2012 - October 2015: Amaury Labenne, "Statistical approach to territorial diagnosis through the notion of quality of life", grant ANR / Irstea, co-supervision with Marie Chavent (Ubx2, 50%).
8. Oct. 2011 - Oct. 2014: "A tool to help control losses in drinking water networks: Implementation of a multi-state leak model in the instrumented hydraulic sector", CIFRE grant with the Lyonnaise des eaux, co-supervision with Vincent Couallier (30%, UBx2) and Yves Legat (30%, Irstea)
9. Sept. 2010 - Sept. 2013: Raphaël Coudret, «Development of statistical models with application on data in environment and genetics», IMB-EPOC grant of the Univ. Bx 1, co-supervision with G. Durrieu (50%, UBS)
10. Nov. 2010 - Nov. 2013: Camille Baysse, "Analysis and optimization of the reliability of an opto-electronic equipment equipped with HUMS", Cifre Grant with Thales Optronique, co-supervision with Anne Gégout-Petit (50%, UBxS)

In total, 10 Ph.D theses supported, 3 Ph.D thesis in progress

### **Publications between 1997-2018 (articles + book chapters):**

#### **Articles in international journals**

1. Chavent, M., Kuentz-Simonet, V., Labenne, A., Saracco, J. (2018). ClustGeo: an R package for hierarchical clustering with spatial constraints. *Computational Statistics*, 33, 1799-1822.
2. Jlassi, I., Saracco, J. (2017). Variable importance assessment in sliced inverse regression for variable selection. *Communications in Statistics – Simulation and computation*.
3. Liquet, B. and Saracco, J. (2016). BIG-SIR a sliced Inverse regression approach for massive data. To appear in *Statistics and Its Interface*.
4. Charlier, I., Paindaveine, D., Saracco, J. (2015). QuantifQuantile: an R package for performing quantile regression through optimal I quantization. To appear in *R Journal*.
5. Charlier, I., Paindaveine, D., Saracco, J. (2015). Conditional quantile estimation based on optimal quantization: from theory to practice. *Computational Statistics and Data Analysis*, 91, 20–39.
6. Charlier, I., Paindaveine, D., Saracco, J. (2015). Conditional quantile estimation through optimal quantization. *Journal of Statistical Planning and Inference*, 156,14–30.
7. Coudret, R., Durrieu, G., Saracco, J. (2015). Comparison of kernel density estimators with assumption on number of modes. *Communications in Statistics - Simulation and Computation*, 44(1), 196-216.
8. Bercu, B., Nguyen, T.M.N., Saracco, J. (2015). On the asymptotic behavior of the recursive Nadaraya-Watson estimator associated with the recursive SIR method. *Statistics*, 49(3), 660-679.
9. Coudret, R., Girard, S., Saracco, J. (2014). A new sliced inverse regression method for multivariate response variable. *Computational Statistics and Data Analysis*, 77, 285–299.
10. Chavent, M., Girard, S., Kuentz-Simonet, V., Liquet, B., Nguyen, T.M.N., Saracco, J. (2014). A sliced inverse regression approach for data stream. *Computational Statistics*, 29(5), 1129-1152.
11. Coudret, R., Liquet, B., Saracco, J. (2014). Comparison of sliced inverse regression approaches for underdetermined cases. *Journal de la Société Française de Statistique*, 155(2), 72-96.
12. Baysse, C., Bihannic, D., Gégout-Petit, A., Prenat, M. and Saracco, J. (2014). Hidden Markov Model for the detection of a degraded operating mode of optronic equipment. *Journal de la Société Française de Statistique*, 155(3), 48-61.
13. Chavent, M., Kuentz-Simonet, V., Liquet, B., Saracco, J. (2012). ClustOfVar: An R Package for the Clustering of Variables. *Journal of Statistical Software*, 50, 1-16.
14. Chavent, M., Kuentz-Simonet, V., Saracco, J. (2012). Orthogonal rotation in PCAMIX. *Advances in Data Analysis and Classification*, 6 (2), 131-146.
15. Azaïs, R., Gégout-Petit, A., Saracco, J. (2012). Optimal quantization applied to Sliced Inverse Regression. *Journal of Statistical Planning and Inference*, 142, 481-492.
16. Bercu, B., Nguyen, T.M.N., Saracco, J. (2012). A new approach of recursive and non recursive SIR methods. *Journal of the Korean Statistical Society*, 41, 16-36.
17. Liquet, B., Saracco, J. (2012). A criterion for selecting the number of slices and the dimension of the model in SIR and SAVE approaches. *Computational Statistics*, 27, 103-125.
18. Chavent, M., Kuentz, V., Liquet, B., Saracco, J. (2011). Sliced Inverse Regression for stratified population. *Communications in Statistics - Theory and Methods*, 40, 1-22.
19. Kuentz V., Saracco J. (2010). Cluster-Based Sliced Inverse Regression. *Journal of the Korean Statistical Society*, 39(2), 251-267.
20. Kuentz V., Liquet B., Saracco J. (2010). Bagging versions of Sliced Inverse Regression. *Communications in Statistics - Theory and Methods*, 39(11), 1985-1996.
21. Gannoun, A., Saracco, J., Yu, K. (2010). On semiparametric mode regression estimation. *Communications in Statistics - Theory and methods*, 39(7), 1141-1157.
22. Chavent, M., Liquet, B., Saracco, J. (2010). A semiparametric approach for multivariate sample selection model. *Statistica Sinica*, 20(2), 513-536.
23. Chavent, M., Guégan, H., Kuentz, V., Patouille, B., Saracco, J. (2009). PCA- and PMF-based methodology for air pollution sources identification and apportionment. *Environmetrics*, 20(8), 928-942.
24. Liquet, B., Saracco, J. (2008). Application of the bootstrap approach to the choice of dimension and the alpha parameter in the SIRalpha method. *Communications in Statistics - Simulation and Computation*, 37(6), 1198-1218.
25. Chavent, M., Saracco, J. (2008). On central tendency and dispersion measures for intervals and hypercubes. *Communications in Statistics - Theory and Methods*, 37(8-10), 1471-1482.
26. Ferrigno, S., Gannoun, A., Saracco, J. (2008) Inverse regression methods based on fuzzy partitions. *International Journal of Pure and Applied Mathematics*, 43, 43-62.
27. Gannoun, A., Saracco, J., Yu, K. (2007). Comparison of kernel estimators of conditional distribution function and quantile regression under censoring. *Statistical Modelling*, 7(4), 329-344.
28. Chavent, M., Guégan, H., Kuentz, V., Patouille, B., Saracco, J. (2007). Apportionment of air pollution by source at a French

- urban site. *Case Studies in Business, Industry and Government Statistics (CSBIGS)*, 1-2, 119-129.
29. Barreda, L., Gannoun, A., Saracco, J. (2007). Some extensions of multivariate SIR. *Journal of Statistical Computation and Simulation*, 77(1-2), 1-17.
  30. Liqueur, B., Saracco, J. (2007). Pooled marginal slicing approach via SIRalpha with discrete covariables. *Computational Statistics*, 22(4), 599-617.
  31. Liqueur, B., Saracco, J., Commenges, D. (2007). Selection between proportional and stratified hazards models based on Expected Log-likelihood. *Computational Statistics*, 22(4), 619-634.
  32. Gannoun, A., Saracco, J., Yuan, A., Bonney, G.E. (2005). Nonparametric quantile regression with censored data. *Scandinavian Journal of Statistics*, 32, 527-550.
  33. Saracco, J. (2005). Asymptotics for pooled marginal slicing estimator based on SIRalpha approach. *Journal of Multivariate Analysis*, 96, 117-135.
  34. Gannoun, A., Saracco, J., Urfer, W., Bonney, G.E. (2004). Nonparametric analysis of replicated microarray experiments. *Statistical Modelling*, 4 (3), 195-209.
  35. Gannoun, A., Girard, S., Guinot, C., Saracco, J. (2004). Sliced Inverse Regression In Reference Curves Estimation. *Computational Statistics and Data Analysis*, 46 (1), 103-122.
  36. Gannoun, A., Guinot, C., Saracco, J. (2004). Reference curves estimation via alternating sliced inverse regression. *Environmetrics*, 15, 81-99.
  37. Gannoun, A., Saracco, J. (2003). A cross validation criteria for SIRalpha and PSIRalpha methods in view of prediction. *Computational Statistics*, 18, 585-603.
  38. Gannoun, A., Saracco, J., Yu, K. (2003). Nonparametric time series prediction by conditional median and quantiles. *Journal of Statistical Planning and Inference*, 117, 207-223.
  39. Gannoun, A., Saracco, J., Yuan, A., Bonney, G.E. (2003). On adaptive transformation-retransformation estimate of conditional spatial median. *Communications in Statistics - Theory and methods*, 32 (10), 1981-2011.
  40. Gannoun, A., Saracco, J., Bonney, G.E. (2003). A note on partitioning estimate of conditional distribution under censoring. *International Journal of Pure and Applied Mathematics*, 5, 95-103.
  41. Gannoun, A., Saracco, J. (2003). An asymptotic theory for SIRalpha method. *Statistica Sinica*, 13 (2), 297- 310.
  42. Gannoun, A., Saracco, J. (2002). A new proof of strong consistency of kernel estimation of density function and mode under random censorship. *Statistics and Probability Letters*, 59, 61-66.
  43. Gannoun, A., Girard, S., Guinot, C., Saracco, J. (2002). Reference curves based on nonparametric quantile regression. *Statistics in Medicine*, 21, 3119-3155.
  44. Saracco, J. (2001). Pooled Slicing methods versus Slicing methods. *Communications in Statistics - Simulation and Computation*, 30(3), 489-511.
  45. Saracco, J. (1999). Sliced Inverse Regression under linear constraints. *Communications in Statistics - Theory and Methods*, 28(10), 2367-2393.
  46. Saracco, J. (1997). An asymptotic theory for Sliced Inverse Regression. *Communications in Statistics - Theory and Methods*, 26(9), 2141-2171.
  47. Aragon, Y., Saracco, J. (1997). Sliced Inverse Regression (SIR): an appraisal of small sample alternatives to slicing. *Computational Statistics*, 12, 109-130.

#### Articles in french journals

1. Claudio, K., Couallier, V., Le Gat, Y., Saracco, J. (2014) Estimation de la consommation d'eau d'un secteur hydraulique à partir d'un échantillon d'usagers télérelevés. *Journal de la Société Française de Statistique*, 155(4), 160-177.
2. Kuentz-Simonet, V., Lyser, S., Candau, J., Deuffic, P., Chavent, M., Saracco, J. (2013). Une approche par classification de variables de la typologie d'observations: le cas d'une enquête agriculture et environnement, *Journal de la Société Française de Statistique*, 154(2), 37-63.
3. Nguyen, T.M.N., Saracco, J. (2010). Estimation récursive en régression inverse par tranches (sliced inverse regression). *Journal de la Société Française de Statistique*, 151(2), 19-46.
4. Chaouch, M., Gannoun, A., Saracco, J. (2009). Quantile spatial conditionnel et non conditionnel: une méthode d'estimation et implémentation en R des estimateurs. *Journal de la Société Française de Statistique*, 150(2), 1-27.
5. Chavent, M., Kuentz, V., Saracco, J. (2007). Analyse en Facteurs: Présentation et comparaison des logiciels SAS, SPAD et SPSS. *La Revue Modulad*, 37, 1-30.
6. Gannoun, A., Girard, S., Guinot, C., Saracco, J. (2004). Implémentation en C d'estimateurs non paramétriques de quantiles conditionnels. Application au tracé de courbes de référence. *La Revue Modulad*, 31, 59-70.
7. Gannoun, A., Guinot, C., Saracco, J. (2002). Méthodes de régression semi-paramétrique de type « slicing » ou « pooled slicing »: mises en œuvre sous le logiciel SAS et application sur un jeu de données. *La Revue Modulad*, 29, 1-38.
8. Gannoun, A., Girard, S., Guinot, C., Saracco, J. (2002). Trois méthodes non paramétriques pour l'estimation de courbes de référence. Application à l'analyse des propriétés biophysiques de la peau. *Revue de Statistique Appliquée*, 1, 65-89.
9. Saracco, J. (1999). Implémentation en Splus des méthodes SIR univariées et multivariées. *La Revue Modulad*, 22, 78-100.
10. Saracco, J., Larramendy, I., Aragon, Y. (1999). La régression inverse par tranches ou méthodes SIR: présentation générale. *La Revue Modulad*, 22, 21-39.

#### Book chapters

1. Girard, S. and Saracco, J. (2016). Supervised and unsupervised classification using mixture models. Chapter book in *Statistics for astrophysics: Clustering and Classification*, D. Fraix-Burnet and D. Valls-Gabaud (eds), EAS Publications series, to appear.
2. Chavent, M. and Saracco, J. (2016). Clustering of variables. Chapter book in *Statistics for astrophysics: Clustering and Classification*, D. Fraix-Burnet and D. Valls-Gabaud (eds), EAS Publications series, to appear.
3. Girard, S. and Saracco, J. (2014). An introduction to dimension reduction in nonparametric kernel regression. Chapter book in *Statistics for astrophysics: Methods and Applications of Regression*, D. Fraix-Burnet and D. Valls-Gabaud (eds), EAS Publications series, vol. 66, pp 167-196.
4. Saracco, J. (2010). Construction de courbes de référence (Chapitre 13, pp 325-356) du livre *Approches non-paramétriques en régression*, Eds. J.-J. Dreesbeke et G. Saporta, Editions TECHNIP.
5. Gannoun, A., Liqueur, B., Saracco, J., Urfer, W. (2007). A kernel method in analysis of replicated micro-array experiments. Chapter book in *Statistical Methods for Biostatistics and Related Fields*, Eds. W. Haerdle, Y. Mori, P. Vieu. Springer Berlin Heidelberg, pp 45-61.
6. Saracco, J., Gannoun, A., Guinot, C., Liqueur, B. (2007). A semiparametric approach to estimate reference curves for biophysical properties of the skin. Chapter book in *Statistical Methods for Biostatistics and Related Fields*, Eds. W. Haerdle, Y. Mori, P. Vieu, Springer Berlin Heidelberg, pp 181-205
7. Saracco, J., Gannoun, A., Guinot, C. (2003). Estimation de courbes de référence pour l'analyse de propriétés biophysiques. *Annexe au rapport sur la Statistique et les Probabilités, Commission de Réflexion sur l'Enseignement des Mathématiques (CREM)*, 34-39.

## Publications in international journals of other scientific fields

1. Ellies-Oury M.P., Gagaoua M., Chavent M, Saracco J., Picard B. (2017). Biomarker abundance in two beef muscles depending on animal breeding practices and carcass characteristics. *JSM Bioinformatics, Genomics and Proteomics*, 2(1): 1013.
2. Ellies-Oury M.P., Cantalapiedra-Hijar G., Durand D., Gruffat D., Lustrat A., Micol D., Ortigues-Marty I., Hocquette J.F., Chavent M., Saracco J., Picard B. (2017). Une nouvelle approche méthodologique pour piloter la conduite en élevage. *Viandes et Produits Carnés, Juillet 2017*, 33, 3, 8p.
3. Ellies-Oury M.P., Cantalapiedra-Hijar G., Durand D., Gruffat D., Lustrat A., Micol D., Ortigues-Marty I., Hocquette J.F., Chavent M., Saracco J., Picard B. (2016). An innovative approach combining animal performances, nutritional value and sensory quality of meat. *Meat Science*, 122, 163-172.
4. Claudio, K., Couallier, V., Leclerc, C., Le Gat, Y., Litrico, X., Saracco, J. (2015). Detecting leaks through AMR data analysis. *Water Science and Technology: Water Supply*, 15 (6) 1368-1372.
5. Claudio, C., Couallier, V., Leclerc, C., Le Gat, Y., Saracco, J. (2015). Consumption estimation with a partial automatic meter reading deployment. *Water Science and Technology-Water Supply*, 15(1), 50-58.
6. Baillon L., Pierron F., Coudret R., Normendeau E., Caron A., Peluhet L., Labadie P., Budzinski H., Durrieu G., Saracco J. et al. (2015) A novel global transcriptome approach of wild Atlantic eels reveals unexpected specific signatures of pollutants, *Ecotoxicology*, 24(1),71-84.
7. H. S. Andrianolisoa, C. Menut, P. Collas de Chatelperron, P. Danthu and J. Saracco (2006). Intraspecific chemical variability and highlighting of chemotypes of leaf essential oils from *Ravensara aromatica* Sonnerat, an endemic tree to Madagascar, *Flavour and Fragrance Journal*, 21(5), 833-838.

## Software development

1. Package R *edrGraphicalTools*, allows estimating semiparametric regression models with SIR type approaches.
2. Package R *PCAmixdata*, allows to make multidimensional statistics (ACP, ACM, AFM) on mixed data.
3. Package *ClustOfVar* R, allows to make the classification of variables.
4. Package R *QuantifQuantile*, allows non-parametric estimation of conditional quantiles with optimal quantization tools.
5. Package R *ClustGeo*, allows to make the classification of individuals taking into account geographical constraints.
6. Package R *ddsPLS*, allows a sparse PLS formulation for mono and multi-block data sets with missing samples.

## Patents

1. Didier Bihannic, Camille Baysse, Benoîte de Saporta, François Dufour, Anne Gégout-Petit, et al.. Procédé de maintenance d'un équipement. France, Patent n°: 068689 FR MPH/ MAG.
2. Claudio, K., Couallier, V., Le Gat, Y., Saracco, J. et al. Procédé pour estimer en temps réel la consommation totale d'un fluide distribué à des usagers, et réseau de distribution mettant en œuvre ce procédé. PCT/FR2012/052355.

## Conferences and invitations

More than 60 papers at national or international conferences (Journées de Statistique de la SFdS, Agrostat, COMPSTAT, ASMDA, IFCS, USE'R, etc.). Thirty invitations to seminars in French or foreign universities.

Example of recent conferences guests:

- Saracco, J., Jlassi, I. (2016). Variable importance assessment in sliced inverse regression for variable selection. 9th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2016).
- Saracco, J. (2016). Un exemple de régression semiparamétrique: l'approche SIR (sliced inverse regression), Faculté des Sciences de Monastir, Tunisie.
- Saracco, J. (Décembre 2015). About sliced inverse regression. ECARES seminars, Université Libre de Bruxelles, Belgique.
- Saracco, J. Dimension reduction based on sliced inverse regression (SIR): a look at the special case  $n < p$ . Novembre 2012. Cambridge University, Angleterre.
- Saracco, J. A sliced inverse regression approach for block-wise evolving data streams. Avril 2012. STATLEARN'12, Workshop on "Challenging problems in Statistical Learning", Lille.
- Saracco, J. A semiparametric approach to estimate reference curves for biophysical properties of the skin. Septembre 2010. Workshop on *Time Series, Quantile Regression and Model Choice*, Technical University of Dortmund, Allemagne.

## Recognition:

- Vice-president of the French Society of Statistics (SFdS) from 2014 to 2016.
- Member elected to the SFdS board of directors from 2002 to 2005, and since 2014.
- Elected member of CNU 26 (College A) since 2011, elected at CNU 26 (College B) between 2003 and 2004.
- Regular invitations to foreign universities For example: Honk Hong Baptist University (China), November 2015,
- Brunel University (UK), October 2014; Trobe University (Australia), November 2013; Cambridge University (UK), November 2012; Technical University of Dortmund (Germany), September 2010.
- Project Manager InterLabEx CPU-TRAIL 2014-2015 "Advanced Statistical Methods for Database Analysis multidimensional brain imaging".
- In December 2015, member of the HCERES committee for the evaluation of the mathematics laboratory at the University of Le Mans.
- In January 2013, member of the AERES committee for the evaluation of the LPMA, University Pierre and Marie Curie and University Paris Diderot.
- In December 2011, member of the AERES committee for the evaluation of the Laboratory of Non Linear Analysis and Geometry of the University Avignon and the Pays du Vaucluse.
- Participation in several ANR projects (Adapt'eau, Immorteel, Géotopal).
- 2007-2010: Aquitaine Region Research Project 2007-2010 for the Mathematical Institute of Bordeaux on the theme "Recursive estimation for semi-parametric models."
- 2004-2007: Burgundy research project "Reception of new research teams" (FABER program).
- Referee for many Statistics journals: The Annals of Statistics, Journal of Multivariate Analysis, Statistica Sinica, Biometrika, Communications in Statistics - Theory and Methods, Computational Statistics and Data Analysis, Journal of Statistical Planning and Inference. . .
- Associate Editor of the journal Case Studies in Business, Industrial and Government Statistics Member of numerous selection committees for the recruitment of teacher-researchers in France (3 per year since 2007).
- Reporter of many theses (in France or abroad: Australia, England, Belgium) and HDR every year, and jury member of theses and HDR regularly.

- Responsible for meetings of young statistician (under the aegis of the French Society of Statistics) from 2011 to 2015.
- Member of the scientific committee of the meetings of the young statistician from 2007 to 2015.
- Member of the organizing committee of StatLearn 2013 (8-9 April) in Bordeaux.
- Member of the organizing committee of the first R meetings in 2012 in Bordeaux (2-3 July), and founder of these meetings.
- Vice-president of the 41st Journées de Statistique in Bordeaux in 2009 (25-29 May).
- Holder of the doctoral supervision bonus (PEDR) from October 2003 to September 2007.
- Holder of the doctoral supervision bonus (PEDR) from October 2007 to September 2011.
- Awarded the Scientific Excellence Award (PES) from October 2011 to September 2015.
- Holder of the doctoral supervision bonus (PEDR) since October 2015 (until September 2019).

***Current and past administrative and collective responsibilities:***

- Since 2010: Member of the Executive Committee of ENSC since 2010.
- 2008 - 2010: Elected member of the board of directors (CA, college A) of the University Montesquieu Bordeaux 4.
- 2007 - 2010: Member of the board of GREThA (Research Group in Theoretical and Applied Economics), UMR CNRS 5113.
- 2004 - 2006: Elected member of the board of the Mathematical Institute of Burgundy.
- 2003 - 2004: Member appointed of the Councils of the "Teaching" and "Research" Departments of Mathematical Sciences from Montpellier 2 University.
- Since September 2011, Project Manager "Recruitment" at ENSC.
- 2008 - 2010: TICE (Information and Communication Technologies for Education) project manager for Montesquieu University Bordeaux 4.
- 2008 - 2010: member of the statutes commission University Montesquieu Bordeaux 4. This commission is in charge of the legal security of the University Montesquieu Bordeaux 4.
- 2005 - 2008: Member elected to the Board of Directors of the SFdS.
- 2003 - 2004: Member elected at the CNU in 26th section.
- 2002 - 2005: Member elected to the board of the SFdS.

***Past educational responsibilities:***

- 2009 - 2010: Correspondent of the University Montesquieu Bordeaux 4 for the Master MIMSE (Master of Mathematical Engineering, Statistics and Economical) co-accredited by Bordeaux 1, 2 and 4 universities.
- 2006 - 2009: Head of the Master 2 in Economic and Financial Risk Engineering (IREF) at Montesquieu University Bordeaux 4. This master corresponds to the specialty 4 of the MIMSE master.
- 2004 - 2006: In charge of the Master Pro Mathematics for Computer Graphics and Statistics (MIGS) at the University of Burgundy (with F. Chazal and V. Maume).
- 2003 - 2004: Member appointed of the Council of the "Teaching" Department of Mathematical Sciences of Montpellier 2 University.
- 2000 - 2004: In charge of the DESS Statistical Methods of the Agronomic, Agri-Food and Pharmaceutical Industries (MSIAAP) (with A. Delcamp).