

Curriculum Vitae

Sophie Dabo-Niang

Professional situation

Full professor of Applied Mathematics (Statistics)
Chair of France-Afrique Network for Mathematics of Sustainable Planet Earth
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Academic background

- 2009** HDR (Tenure) Statistics, University Lille 3 (Charles de Gaulle), November 2009.
2002 Ph.D. Statistics, CREST-ENSAE, University Paris 6 (Sorbonne University)
December 2002 ; Advisor : Denis Bosq.
1999 M.S Statistics, University Paris 6
1998 B.S Applied Mathematics, University Paris 5 (René Descartes)
1998 B.S Statistics and Computer Science, University Paris 5
1996 B.S (first two years) in Mathematics, University Gaston Berger, Senegal.

Professional experience

- 2010** Full Professor, University of Lille
2004-2010 Associate professor, University Lille 3 (Charles de Gaulle)
2002-2004 Full time Temporary teacher/researcher,
University Pantheon Assas (Paris 2).

Research activities

Research areas

I am particularly interested on the representation of time and space in random environments through the use of stochastic space and time changes driven by real problems in various areas as economics, medical, epidemiology, physics, environmental and hydrological studies, natural resource management, renewable energy, agriculture,...

1. **Statistics of functional data (valued in functional Banach, Hilbert, spaces of eventually infinite dimension).** This data science topic named Functional Data Analysis (FDA) includes a set of statistical models transforming large complex data into functional data, i.e. data objects, such as curves, shapes, images or a more complex mathematical object, thought of as smooth realizations of a stochastic process. It permits joint registration and a more exhaustive mathematical analysis of structured large data and computational inefficiency.
2. **Spatial statistics : Spatial information modeling, Images analyses.** Spatial statistics includes all statistical techniques used to process and analyse data located in a space of dimension larger than one (images, geostatistical data,...). The study of these kind of data or any characteristic of such data cannot be done without taking into account their respective spatial positions. It leads to a dynamic deployment of mathematical methods (spatial distribution estimation, prediction, regression, test, etc.).
3. **Non-parametric and semi-parametric modeling of functional or spatial data**

Publications

1. Dabo-Niang, S. (2002). Estimation of probability density in infinite dimension : Application to diffusion processes. *C.R.Acad. Sci. Paris, Ser I.334*, 213-216.
2. Dabo-Niang, S and Rhomari, N. (2003). Non-parametric estimation of regression with explanatory variable in a metric space. *C.R.Acad. Sci. Paris, Ser I. 336*, 75-80.
3. Dabo-Niang, S. (2003). Density estimation in a separable metric space. *Pub. Inst. Stat. Univ. Paris*, Vol. XXXXVII, fasc. 1-2, 3-21.
4. Dabo-Niang, S. (2004). Density estimation by orthogonal series in an infinite dimensional space : Application to processes of diffusion type. *Journal of Nonparametric Statistics*, Vol 16, 1-2, p : 171-186.
5. Dabo-Niang, S. (2004). Kernel density estimator in an infinite dimensional space with a rate of convergence in the case of diffusion process. *Applied Mathematical Letters*, Vol 17, 4, p : 381-386.
6. Dabo-Niang, S ; Ferraty, F and Vieu, P. (2004). Mode estimation in a functional space, *C.R.Acad. Sci. Paris, Ser I. 339*, 659-662.
7. Dabo-Niang, S ; Ferraty, F and Vieu, P. (2004). Nonparametric unsupervised classification of satellite wave altimeter forms. In *Proceedings in Computational Statistics*, Ed, J, Antoch, Physica-Verlag, Heidelberg New-York, p : 879-886.

8. Dabo-Niang, S; Ferraty, F and Vieu, P. (2006). Mode estimation for functional random variable and its application for curves classification. *Far East Journal of Theoretical Statistics*. Vol 18, No. 1 (2006), pp 93 - 119.
9. Dabo-Niang, S; Ferraty, F and Vieu, P. (2007). On the using of modal curves for radar waveforms classification. *Computational statistics and data analysis*, Vol 51, 4878-4890.
10. Dabo-Niang, S. and Laksaci, A. (2007). Estimation of non-parametric conditional mode for explanatory functional variable. *C.R., Math., Acad. Sci. Paris*, 344, 49-52.
11. Dabo-Niang, S and Yao, A-F (2007). Spatial kernel regression estimation, *Mathematical Methods of Statistics*, Vol 16, No 4, 1-20.
12. Dabo-Niang, S and Laksaci, A (2007). Non-parametric conditional mode estimate with explanatory functional variable. *Pub. Inst. Stat. Univ. LI*, 3, 27-42.
13. Deru, X., Champarnaud, L., Dabo, S., and Florent, G. (2007). Chronology, ceramics and statistics, Proceedings of the Congress of Langres, *SFECAG*, 49-60.
14. Basse, M, Dabo-Niang, S and Diop, A (2008). Kernel density estimation for functional random fields. *Pub. Inst. Stat. Univ. Paris*, LII, 1-2, 91-108.
15. Dabo-Niang, S and Rhomari, N (2009). Kernel regression estimate in a Banach space. *Journal of statistical planning and inference*, 139, 1421-1434.
16. Dabo-Niang, S and Guillas S (2010). Functional semi-parametric partially linear model with autoregressive errors. *Journal of multivariate analysis*, 101, 2, 307-315.
17. Dabo-Niang, S, Yao, A-F, Pischedda, L, Cuny, P and Gilbert, F. (2010). Spatial mode estimation for functional random fields with application to bioturbation problem. *Stochastic Environmental Research and Risk Assessment*, 24, 4, 487-497.
18. Bensaid, N and Dabo-Niang, S. (2010). Frequency polygons for continuous random fields. *Stochastic Processes and Statistical Inference*, 13,1, 55-80.
19. Dabo-Niang, S and Laksaci, A. (2010). Note on conditional mode estimation for functional dependent data. *Statistica*, Vol LXX (1), 83-94.
20. Abdi, S, Abdi, A, Dabo-Niang, S et Diop, A. (2010). Consistency of a nonparametric conditional quantile estimator for random fields. *Mathematical Methods and Statistics*, 2010, Vol. 19, No. 1, 1-21.
21. Dabo-Niang, S and Thiam, B. (2010). L_1 consistency of a kernel estimate of spatial conditional quantile. *Statistics and probability letters*, Vol. 80 (17-18), 1447-1458.
22. Abdi A, Abdi, S, Dabo-Niang, S and Diop, A. (2010). Estimation non-paramétrique du mode conditionnel spatial. *C. R., Math., Acad. Sci. Paris* . Vol. 348 (13-14), 815-819.
23. Dabo-Niang, S, Francq, C and Zakoian, J-M. (2010). Combining parametric and nonparametric approaches for time series prediction. *JASA*, Vol 105 (492), 1554-1565.
24. Benrabah, O, Dabo-Niang S. et Hamdad, L. (2010). Kernel density estimation for linear processes with dependent innovations. *Journal of Statistics : Advances in Theory and Applications*, Vol 4, 1, 41-72.
25. Dabo-Niang, S, Kaid, Z. and Laksaci, A (2011). Sur la régression quantile pour variable explicative fonctionnelle : Cas des données spatiales. *C. R., Math., Acad. Sci. Paris*. Vol 349, 23-24, 1287-1291.

26. Abdi A, Abdi, S, Dabo-Niang, S and Diop, A. (2011). Asymptotic normality of a nonparametric conditional quantile estimator for random fields. *Advances in Decision Sciences*. Article ID 462157, doi :10.1155/2011/462157.
27. Dabo-Niang, S, Rachdi M and Yao, A-F. (2011). Spatial kernel regression estimation and prediction for functional random fields. *Far east journal of Statistics*. Volume 37, Issue 2, Pages 77 - 113.
28. Dabo-Niang, S and Laksaci, A. (2012). Nonparametric quantile regression estimation for functional dependent data. *Communication in Statistics : Theory and Methods*. 41, 1254-1268.
29. Chebana, F, Dabo-Niang, S and Ouarda, T. (2012). Explanatory functional flood frequency analysis. *Water Resources Research*, 48, W04514, doi :10.1029/2011WR011040.
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31. Dabo-Niang, S et Zoueu, J. (2012). Using kriging to resolve malaria-infected erythrocyte contents. *Journal of Microscopy*. DOI : 10.1111/j.1365-2818.2012.03637., 247 (3), 240-251.
32. Dabo-Niang, S, Kaid, Z. and Laksaci, A (2012). Spatial conditional quantile regression : weak consistency of a kernel estimate. *Revue Roum Math Pures Appl*, 4, 311-339.
33. Dabo-Niang, S and Yao, A-F. (2013). Spatial kernel density estimation for functional random variables. *Metrika*. 76(1) :19-52.
34. Dabo-Niang, S ; Abdi, S ; Abdi, A, and Diop, A. (2014). Consistency of a nonparametric conditional mode estimator for random fields. *Statistical Methods and Application*. DOI : 10.1007/s10260-013-0239-2.
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doi :10.1016/j.crma.2015.10.010.
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51. Dabo-Niang, S., Thiam, B. (2019). Kernel regression estimation with errors-in-variables for random fields. *Afr. Mat* ; https ://doi.org/10.1007/s13370-019-00654-7
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53. Ahmed, M-S., Dabo-Niang, S., Genin, M., Hassan, A.A. (2019). Partially linear spatial probit models. *Annals of ISUP*. Annals of ISUP. 63, fasc. 2-3, 2019, 71-96
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55. Ndiaye ; M., Dabo-Niang, S., Ngom, P., Thiam, N., Fall, M., Brehmer, P. (2020). Nonparametric prediction for spatial dependent functional data : Application to demersal coastal off Senegal. *Mathematical Modeling and Study of Random or Deterministic Phenomena*, Wiley. http ://www.iste.co.uk/book.php?id=1601
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58. Ahmed, M-S., Broze, L., Dabo-Niang, S., Gharbi, Z. (2021). Regression models for spatially distributed autoregressive functional data. *Geostatistical Functional Data Analysis : Theory and Methods. J. Mateu and R. Giraldo (Eds). John Wiley and Sons, Chichester, UK. ISBN : 978-1-119-38784-8.*
59. Dabo-Niang, S., Ternynck, C., Thiam, B. and Yao, A-F. (2021). Non-parametric statistical analysis of spatially distributed functional data. *Geostatistical Functional Data Analysis : Theory and Methods. J. Mateu and R. Giraldo (Eds). John Wiley and Sons, Chichester, UK. ISBN : 978-1-119-38784-8.*
60. Vandewalle, V., Preda, C., Dabo-Niang, S. (2021). Clustering spatial functional data. *Geostatistical Functional Data Analysis : Theory and Methods. J. Mateu and R. Giraldo (Eds). John Wiley and Sons, Chichester, UK. ISBN : 978-1-119-38784-8.*
61. Boumeddane, S., Hamdad, L., Dabo-Niang, S., Haddadou, H. (2021). A Kernel Discriminant Analysis for Spatially Dependent Data. *Distributed and Parallel Databases*. 39 : 583-606. <https://doi.org/10.1007/s10619-020-07309-8>.
62. Boumeddane, S.; Hamdad, L.; Haddadou, H. and Dabo-Niang, S. (2021). Dimensionality Reduction and Bandwidth Selection for Spatial Kernel Discriminant Analysis. *In Proceedings of the 13th International Conference on Agents and Artificial Intelligence - Vol. 2 : ICAART*, ISBN 978-989-758-484-8 ISSN 2184-433X, p : 278-285. DOI : 10.5220/0010269002780285
63. Gbogbo, A.Y, Kouakou, B-K, Dabo-Niang, S. Zoueu, J-T (2022). Predictive model for airborne insect abundance intercepted by a continuous wave Scheimpflug lidar in relation to meteorological parameters. *Ecological Informatics*, Vol 68. <https://doi.org/10.1016/j.ecoinf.2021.101528>.
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67. Yacour, S., Dabo-Niang, S., El Ghini, A. (2022). Investigating Environmental Kuznets Curve for CO2 Emissions : A Cointegration Analysis for Morocco. *Proceedings of the Sixteenth International Conference on Management Science and Engineering Management*. Vol 2, 145, 506-525. *Lecture Notes on Data Engineering and Communications Technologies*, DOI : 10.1007/978-3-031-10385-8-36.
68. Kanga, A-S., Ouagnina H., Dabo-Niang, S, N'Guessan, A (2022). Asymptotic properties of nonparametric quantile estimation with spatial dependency. *Statistica Neerlandica*, 2022, DOI : 10.1111/stan.12284.

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72. Frévent, C., Ahmed, M-S , Dabo-Niang, S., and Genin, M. (2023). Investigating spatial scan statistics for multivariate functional data. *Journal of Royal Statistical Society C*. 72, Issue 2, May 2023, Pages 450-475, <https://doi.org/10.1093/jrssc/qlad017>.
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87. Pillay, A.B., Pathmanathan, D., Dabo-Niang, S., Abu, A., Omar, H. (2024). Functional data geometric morphometrics with machine learning for craniodental shape classification in shrews. *Scientific Report* 14, 15579. <https://doi.org/10.1038/s41598-024-66246-z>
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91. Ibrahimou, B., Sun, N., Dabo-Niang S. (2024). Assessing the multi-dimensional effects of air pollution on maternal complications and birth outcomes : A structural equation modeling approach. *Hygiene and Environmental Health Advances*. 12, 100113. <https://doi.org/10.1016/j.heha.2024.100113>
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94. Yap, Z.J., Pathmanathan, D.P., Dabo-Niang, S. (2025). Forecasting mortality rates with functional signatures. *ASTIN Bulletin. The Journal of the International Actuarial Association*. <https://doi.org/10.1017/asb.2024.38>
95. Jannin, A., Dabo-Niang, S., Dessein, A-F., et al. (2025). Metabolite biomarker discovery for pancreatic neuroendocrine tumors using metabolomic approach. *European Journal of Endocrinology*, 27 ; 192(4) :466-480. 10.1093/ejendo/lvaf055.

Books

1. Dabo-Niang, S and Ferraty, F. (2008). Functional and Operatorial Statistics, Springer-Verlag, New-York.
2. Manou-Abi, S., Salone, J-J,. and Dabo-Niang, S. (2020). Mathematical Modeling and Study of Random or Deterministic Phenomena. Wiley. <http://www.iste.co.uk/book.php?id=1601>
3. Xu., J., Noor Azina Binti Ismail, N.A.B ;, Dabo-Niang, s., Ali Hassan, M.H., Hajiyeve, A. (2024). The Eighteenth International Conference on Management Science and Engineering Management. Springer, Lecture Notes on Data Engineering and Communications Technologies.
4. Cardot, H., Chagny, G., Cugliari-Duhalde, J., Dabo-Niang., Nerini D., Roche, A., Saporita, J. (2025). Analyse de données fonctionnelles/Functional Data Analysis. JES, SFDS, 2024. Sous la direction de C. Thomas-Agnan et Anne Gégout-Petit. To Appear in tEditions TECHNIP.

Articles under revision or submitted

1. BenSaber, A., Dabo-Niang, S., Karoui, A. (2024). Multivariate nonparametric regression by least squares Jacobi polynomials approximations.
2. Pathmanathan, D., Dabo-Mbenard, I., Tzung Hsuen, K., Hassan, A.A. and Dabo-Niang, S. (2024). Functional space time series forecasting and application to age-specific mortality rates.
3. Nasini, S., Erdemlioglu, D., Ding, H., Dabo-Niang, S. (2024). Retrospective Bayesian Estimation for Multinational Pandemic Outbreaks.

Some works in progress

1. Dabo-Niang, S., El Ghini, A. and Yacour, S. (2023). Spatial-temporal analysis of impact of economic growth on the environment in Africa.
2. Ahmadian, Agonkoui, C., Dabo-Niang, I-M, B., Collard, D., Tarhan, M-C., Dabo-Niang, S (2024). Single cell classification for cancer cell identification.
3. Cheok, M., Dabo-Niang, S., Nasini, S., Thiam, B. (2024). Integrated AI-based pharmacodynamic modelling for pediatric acute myeloid leukemia.

Software

- Frévent, C., Ahmed, M-S, Soula, J., Smida, Z., Cucala, L., Dabo-Niang, S., Genin, M. (2021). Multivariate and Functional Spatial Scan Statistics. R Package. [HDSpatialScan](#)

Various responsibilities

- Vice-president of [CIMPA](#) (International Center for Pure and Applied Mathematics), January 2025-
- Chair of [Mathematical Statistics theme of Encyclopedia of SCIENCES](#), December 2023-to present
- Member of Scientific Committee, ICMS (International Centre for Mathematical Sciences) [Mathematics for Humanity](#), 2023-to present
- Chair of Career Development Committee of [PASRC](#) (Pan-African Scientific Research Council), 2021-.
- Vice-president of Executive Committee of [PASRC](#) (Pan-African Scientific Research Council), 2021-.
- Chair of [EMS-CDC](#) (European Mathematical Society, Committee for Developing Countries), 2019-2022.
- Member of the scientific committee of [APSA](#) (Association pour la promotion scientifique de l'Afrique) Award, 2019-.
- Member of the scientific committee of [Ibni Oumar Mahamat Saleh](#) (Association pour la promotion scientifique de l'Afrique) Award, 2019-.
- Co-responsible of the website of [AFRIMATH](#) (Afrique France Réseau International en Mathématiques), 2021-.
- Member of [CIMPA](#) (International Center for Pure and Applied Mathematics) : October 2016-
- Member of the EMS-CDC (European Mathematical Society, Committee for Developing Countries) : 2017-.
- Vice-Chair of EMS-CDC : 2018-2019.
- Member of Diversity committee of [IMU](#) (International Mathematical Union), 2020-
- Member of the executive committee of [CIMPA](#) : 2018-
- Member of the director committee of ONCOLILLE (multidisciplinary Cancer Research Center) : 2019-
- Head of the MéQAME axis at the LEM laboratory, UMR 9221, March 2015-2019
- Director of the EQUIPPE laboratory on Lille 3 : October 2010-March 2015
- Head of the MIASHS multi-disciplinary bachelor's degree in Mathematics : 2009-2014
- Head of the MIASHS master's degree, 2015-2023.
- Elected member of the board of the UFR MIME (Mathematics, Computer Science, Management and Economics) from 2005-2009, 2014-2019.
- Member of the Strategic Committee for International Relations of the University of Lille 3, 2010-2016.
- Member of the working group in charge of campus life at the University of Lille, when merging the three Lille universities (Lille 1, Lille 2 and Lille 3) in 2011. I was in charge of the improvement of the reception and accommodation of foreign students and teacher-researchers in Lille.
- Associate editor of *Revista Colombiana de Estadística*, 2015-
- Associate editor of *Journal of Statistical Modeling and Analytics*, 2020-
- Associate editor of *Journal of Nonparametrics Statistics*, 2021-
- Associate editor of *Afrika Matematika*, 2023-
- Chair of Mathematical Statistics theme of Encyclopedia of SCIENCES, December 2023-
- Reviewer for journals : *Statistical Inference for Stochastic Processes*, *Computational Sta-*

tistics and Data Analysis, Statistics, Journal Afrika Statistika, Journal of Multivariate Analysis, Journal of Nonparametric statistics, Annales de l'ISUP, Electronic journal of statistics, Metika, Annals of Statistics,...

- AERES (National French Universities Evaluation Agency) expert (2012-2013)
- HCERES (National French Universities Evaluation Agency) expert (evaluations 2019-2020, 2020-2021, vagues A and B)
- Expert for evaluation of l'OREAL-UNESCO "Womens in Science" Awards, since 2014.
- I set up in 2014 a group "Mathematicians of the African diaspora" within the association "Women and Maths" (<http://www.femmes-et-maths.fr>) of France in order to help African young people to access higher studies in sciences.
- I coordinated in 2010 (with the help of the international office of University Lille 3) the working group on the agreement between the three Lille universities (Lille 1, Lille 2 and Lille 3) and University Gaston Berger, Senegal.
- I have set up the project of a double master's degree in Applied Mathematics and Computer Science between the University of Cheikh Anta Diop (Senegal) and University Lille 3. This diploma started in 2017.
- Member of the international ERCIM Computational and Methodological Statistics, Working Group
- Member of the international ERCIM specialized Team on Functional Data Analysis
- Member of IRN (International Research Network of CNRS) AFRIMath
- Member of the Biomathematics network 3MC

Organization of scientific events

- Member of the scientific committee of *Fifth days of Functional and Operatorial Statistics*, 15-16 June 2006, University of Grenoble 2, France.
- Co-organization of the *Fifth Statistics Day Colleagues functional and operative*, 21-22 June 2007, University Lille 3.
- Member of the Scientific Committee of the *First International Workshop on Functional and Operational Statistics*, 19-21 June 2008, University of Toulouse.
- Co-organization of a session on *Spatial Statistics* at the SFDS (French Statistical Society) congress, May 24-28, 2010, Marseille.
- In 2010, I set up a working group on *Spatial statistics* at University Lille 3.
- Co-organization of a working group on *Spatial statistics and archeology*, started on May, 2013, University Lille 3.
- Member of the Scientific Committee of *Dakar International Conference on Recent Developments in Applied Statistics*, 17-20 March 2014.
- Vice-president of the organizing committee of the *47th days of the SFDS* in Lille, from 01 to 05 June 2015.
- Co-organization of the session *Functional Statistics and Hydrology of the International Conference "Statistics and Hydrology"*, November 10-11, 2014, Masdar Institute, Abu-Dhabi.
- Co-organization of the African Mathematics School (EMA) *Mathematical Modelization and Climate Change*, November 30 to December 5, 2015, National Institute of Polytechnics, Yamoussoukro, Ivory Coast.
- Co-organization of the session *Asymptotic properties in nonparametric problems (EO116)* of The 8th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2015)

- ([http : // www.cmstatistics.org/CMStatistics2015/](http://www.cmstatistics.org/CMStatistics2015/)), 12-14 December 2015, in London.
- Co-organization/Scientific Officer of the CIMPA School : *Statistical Methods for the Assessment of Extreme Risks* : April 5 to 15, 2016, St-Louis, Senegal.
- Co-organization of the workshop *Financial and actuarial Mathematics* ; July 11-15, 2016, AIMS-Mbour, Senegal
- Member of the Scientific Committee of *STAHY 2016 Workshop*, 26-27 September 2016, Quebec, Canada.
- Member Organizing Committee of the workshop *BIG DATA Modeling, Estimation and Selection*, 9-10 June, 2016, Lille
- Co-organization of the "EO075 : *Quantile regression models for dependent data* session of the conference "The 9th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2016)" ([http : // www.cmstatistics.org/CMStatistics2015/](http://www.cmstatistics.org/CMStatistics2015/)), from 9 to 11 December 2016, in Seville.
- Co-organization of the session *Asymptotic properties in nonparametric spatial problems* of Third conference of the International Society for NonParametric Statistics (ISNPS), from 11 to 16 June 2016, Avignon, France.
- Member of the Scientific Committee of *International Symposium on the Economics of Finance*, 18-19 November 2016, Rabat, Morocco.
[https ://sites.google .com/site/jefconference/home](https://sites.google.com/site/jefconference/home)
- Organization of the Workshop *Statistical methods for recurrent data*, 7 November, 2016.
[http ://www.oncolille.fr/statistical-methods-for-recurrent-data-workshop/](http://www.oncolille.fr/statistical-methods-for-recurrent-data-workshop/).
- Co-organization of the Workshop, *Learning with functional data*, October 7, 2016, Lille, France. [https ://functional-data.univ-lille1.fr/index.html](https://functional-data.univ-lille1.fr/index.html)
- Member of the Scientific Committee of " *LICMA '17*", 16-19 May 2017, Beirut, Lebanon.
[http ://www.licma.net/](http://www.licma.net/)
- Member of the local committee of the ISI (*61st World Statistics Congress*), 16-21, July, 2017, Marrakech, Morocco.
[http ://payment.isi2017.org/committees/local-program-committeelpc/](http://payment.isi2017.org/committees/local-program-committeelpc/)
- Member of the *AMU International Organization Committee on Women in Mathematics in African-African Women Mathematicians Association 2017 AMUCWMA - AWMA Workshop*, 7-8, July, 2017, Rabat, Morocco.
[http :// www.fsr.ac.ma/PACOM2017/WPACOM2017.php](http://www.fsr.ac.ma/PACOM2017/WPACOM2017.php).
- Co-organisation of the *Spatial econometrics* session of the International Conference on Econometrics and Statistics, June 15-16, 2017, Hong-Kong, China.
- Co-organization of the *Regression models under no iid settings* session of the "The 10th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2017)" ([http : // www. cmstatistics.org/CMStatistics2017/](http://www.cmstatistics.org/CMStatistics2017/)), from 16 to 18 December 2017, London.
- Member of the organizing committee of *First International Conference on Bio-mathematics in Senegal*, 29 June to 01 July 2018, Ecole Polytechnic de Thies, Senegal.
- Co-organization of the *2nd Conference on Econometrics for Environment Workshop*, 19-21 December 2019, Nador, Morocco. [https ://sites.google.com/site/ce2conference/home](https://sites.google.com/site/ce2conference/home)
- Member of the Scientific Committee of *18th International Workshop on Spatial Econometrics and Statistics*, 23-24 May 2019, Paris, France.
[https ://workshop.inra.fr/sew2019/Practical-information](https://workshop.inra.fr/sew2019/Practical-information)

- Co-organization of the session *Recent non-parametric approaches : Applications to environmental, hydrological, oceanological and economic data analyzes* of the ISI conference (62st World Statistics Congress), 18-23, August, 2019 , Kuala Lumpur, Malaysia.
<https://www.isi2019.org>
- Co-organization of the *Modeling dependence through graphical models* session of the conference "The 12th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2019)"
(<http://cmstatistics.org/> / CMStatistics2019 /), 14-16 December 2019, in London.
- Member of the Scientific Committee of *LICMA'19*, 15 to 18 April 2019, in Beirut, Lebanon. <http://kalma-lb.org/licma/licma19/index.php?p=1>
- Member of the scientific program committee of *CRONOS-MDA2019*, 14-16 April 2019, Limassol, Cyprus. <http://www.cmstatistics.org/CRONOSMDA2019/committees.php>
- Member of the Scientific Committee of the *African Econometric Society Conference*, 11-13, July 2019, Rabat.
<https://www.econometricsociety.org/meetings/schedule/2019/07/11/2019-Africa-meeting-econometric-society>
- Member of the scientific committee of *Biennial 2019 of Mathematics in Dakar*, 24-26 June 2019, Dakar, Senegal.
- Organization of *1st Workshop on Functional Data Analysis in West Africa*, AIMS-Senegal, 14-18 April 2020 : <https://sites.google.com/view/fda-workshop-aims-senegal/home>
- Organization of *Afrimath conference*, University of Dakar-Senegal, 14-16 December 2021.
- Member of Scientific Program Committee of "The 14th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2021)"
<http://www.cmstatistics.org/CMStatistics2021/committees.php>
- Co-organization of the *Advances in multivariate functional data analysis* session of the conference "The 14th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2021)", 18-20 December 2021, in London.
- Organization of *20th International Workshop on Spatial Econometrics and Statistics*, 19-20 May 2021, Lille, France. <https://sew2022.sciencesconf.org>
- Organization of ONCOLille days, November 2-4, 2022, Lille. <https://oncolille-days.sciencesconf.org>
- Organization of "Statistics and Science for health", June, 2022, Lille. <https://indico.math.cnrs.fr/event/7894/>
- Co-organisation of the session *Next generation of functional data analysis : From theory to practice* of "The 16th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2023)", 16-18 Decembre 2023, Berlin.
- Co-organisation of *International Conference on Recent Developments in Mathematical Modeling in Biology* 29-31 March 2023, NWU, Potchefstroom, South Africa. <https://natural-sciences.nwu.ac.za/paa/3MC-Conference-BM>
- Organisation of *African Mathematical School on Quantitative Biology : Applications in Epidemiology, Ecology and Cancer* 19-27 February 2024, NWU, Potchefstroom, South Africa. <https://natural-sciences.nwu.ac.za/paa/3MC-School-2024>
- *Mathematical tools for Oncology*, University of Lille, 24-25 April 2024, Lille, France
- *Shared horizons : Collaborations between Europe and the Global South*, Symposium of ECM2024, 15-19 July 2024, Seville, Spain. Co-organized with Balazs Szendroi and Christophe Ritzenthaler.
- Organisation of the session *Advances in Environmental and Ecological Statistics : In-*

sights and Methods across Weather, Climate, Health, and Beyond of 11th World Congress in Probability and Statistics, 12-16 August 2024, Bochum, Germany.

- Organisation of *CIMPA School on Mathematical and Statistical Modeling in Oncology* 3-14 February 2025, NWU, Potchefstroom, South Africa. <https://natural-sciences.nwu.ac.za/paa/3MC-CIMPA-School-2025>
- Organisation of *3MC - PIMS - ICMS - WINNIPEG 2025 Summer School on Quantitative molecular and cellular Biology* Winnipeg, 16-27 June 2025, Canada. <https://julien-arino.github.io/3MC-PIMS-ICMS-Winnipeg-2025/>
- Organisation of *The Retreat for African Women in Mathematical Sciences (RAWAMS)*, AIMS Ghana, Accra, November 2025.
- Organisation of *African Women in Mathematics : Challenging questions and Women in SAGE*, September 30th-October 4th, 2025, Tunis, Tunisia.

Nominations, Awards

- Young Investigator Award from IMS (Institute of Mathematical Statistics) : IMS LAHA AWARD ; August 2003.
- ENSAE-CREST (Center for Research in Economics and statistics) PhD Scholarship from September 1999 to August 2002.
- Doctoral Training and Research Award (PEDR, University of Lille 3), 2008-2012
- Erasmus Mundus scholarship ; 2011-2012.
- Scientific Excellence Award (University of Lille 3), 2012-2016
- Doctoral Training and Research Award (PEDR, University of Lille), 2018-2022
- Member of EMS-CDC (European Mathematical Society-Committee of Developing Countries : <http://euro-math-soc.eu/EMS-CDC/>) ; since January 2017.
- Vice-chair of the EMS-CDC ; 2018-2019.
- Chair of the EMS-CDC ; 2019-2022.
- Member of the Executive Scientific Committee of CIMPA ; 2018-
- Vice-president of Pan-African Scientific Research Council ; 2021-
- Chair of Career Development Committee of Pan-African Scientific Research Council ; 2021-
- Nomination Black Heroes of Mathematics, ICMS, London Mathematical Society, UK, 2023
- Member of Mathematics for Humanity, ICMS, London Mathematical Society, Edinburgh, UK, 2023
- Chair of France-Afrique Network for Mathematics of Sustainable Planet Earth (FANE-MATH-PE), 2024-2027

Some visiting positions

- Georgia Tech, Atlanta, USA, from July-August, 2005.
- Gaston Berger University of Senegal, April 2005, July 2007, July 2008, July 2009, February 2010, July 2011-2019.
- INREST, Quebec, Canada, March 2009, November 2014.
- UCAD (Dakar, Senegal) University, July 2009, July 2012, April 2014, July 2015-2019.
- University College London, August 2009, December 2014.
- University of Science and Technology Missouri, USA, February 2016.

- University of Beirut, Lebanon, May 2017
- University of Tokyo ST, June 2017
- University of Florence, Italy, June 2017
- University of Colombia, USA, June 2018
- University of Melbourne ; Australia, December 2018
- CESAG, Dakar, Senegal, February 2019, 2021, 2022, 2023
- AIMS Senegal, July 2016, 2019, 2021, 2022, 2023
- AIMS South Africa, July 2022
- AIMS Rwanda, April 2023
- Institute of Mathematics and Physical Sciences, Cotonou, Benin, March 2018, May 2019, May 2021, January 2022, 2023
- University of Malaya, Malaysia, August, 2018, 2019, July-August 2023
- University College London, march 2023
- University college Dublin, December 2023
- University Catolic, Rome, Italy, November 2023, December 2024
- Université de Montréal, Canada, August 2024-August 2025
- Fields Institute, Toronto, Canada, September-December 2024

Some research projects, grants

- Member of projects developed within the framework of SIRIC Lille North of France (Integrated Research Site in Oncology)
 1. New risk factors for cancers of the upper aerodigestive tract in French North-Region. 2011-2015. Budget : 126.940 euros. Funding : CPER
 2. Determinants of consultation delay in upper aerodigestive tract cancers. (DEREDIA) : 2011-2014. Budget : 305.435 euros. Funding : National Cancer Institute.
- PI (Principal Investigator) of the project "Determination of recurrence factors of digestive cancers". Funding : SIRIC Lille Nord de France, University of Lille, Northern League Against Cancer. 2015-2017. Budget : 50.000 euros.
- PI on the French side of the project "Study of hydrological variables in the framework of the analysis of functional data (EVHADP) : 2011-2012".
Total budget (French and Canadian) : 23.264 euros. Funding : CPCFQ (Franco-Canadian Cooperation Committee)
- Member of the project : "Dynamics of the Economy of Art and Culture (DEAC)" : 2009-2011. Budget 30.000 euros : Funding from CPER (Regional and European commissions)
- Member of the project : "Socio-Economic mapping of the living spectacle" : 2010-2012 : Budget 34951 euros. Funding : Ministry of Education Culture.
- PI on the French side of "Hydrological modeling and forecasting with functional approaches, the cases of Quebec and France (MPHAQF)" : 2013-2015. Total budget (French and Canadian) : 28130 euros. Funding : CPCFQ (Standing Committee on Franco-Caribbean Cooperation).
- Member of the INRIA Simerge Project (<http://mistis.inrialpes.fr/simerge/>) between Senegal and France, started in January 2015.
- PI of the industrial project with the company " Semences de France ", budget 9.114 euros, 2017.
- PI of the French side of the Franco-Morocco project on " Economic Growth and Environmental Impacts ", 2018-2021. Budget 12000 euros. Funding : Moroccan and French governments.

- Member of the project " Role of socioeconomic and environmental inequalities in gastro-esophageal cancers ", 2019-2021. Budget : 300.000 euros.
- Co-PI of the project "Impact du contexte pandémique de COVID-19 sur les conduites suicidaires et leur prise en charge". 2021-2023. Budget : 439.088 euros.
- PI of the project " PATH (PARcours paTient en milieu Hospitalier)" between INRIA and CHU of Lille, 2021-2024. Budget : 150.000 euros.
- PI of the project " Projet interactif de visualisation des indicateurs de suivi du SCoT de Lille Métropole" , 2021. Budget : 12.825 euros.
- Co-PI of the ANR project CYTOMEMS "Smart MEMS Instrumentation for Biophysical flow Cytometry with Statistical Learning". 2022-2024. Budget : 545 608 euros.
- Co-PI of INCA project "Role of calcium signaling in acute myeloid leukemia and the immunological synapse". 2024-2027. Budget : 594891 euros.
- Member of EN-HOPE SMART4CBT, SIRIC project "East North-Hematology Oncology PEdiatric consortium offering a research program of Social sciences, Microenvironment and multiomics Analyses in RadioTherapy resistance For Children Brain Tumors". 2024-2028. Budget : 3000 K-euros.
- PI of the PHC Ulysses project "Ireland and France Need Healthier Air for healthier Lungs-the Evidence". between University College Dublin and University of Lille, 2023. Budget : 5k euros.
- PI of the Programme Hubert Curien "Estimation with preliminary test, penalization in high dimension with applications". between University Libre of Brussels and University of Lille, 2023-2024. Budget : 3k euros.
- PI of France-Afrique Network for Mathematics of Sustainable Planet Earth (FANE-MATH-PE), 2024-2027. Budget : 300k euros.

Communications

Some invited talks

- *Fifth Meeting of Econometrics and Statistics of Lille 3 and Littoral*, September 23, 2004, Calais, France. Regression Estimation in the case where the explanatory variable takes values in a space metric.
- *3rd days of functional and operatorial statistics*, June 13-14, 2005, Toulouse, France. Nonparametric Estimation of Regression for variables valued in a metric space.
- *National Days on Statistical Analysis : Theory and Moderation*, 02-03 June 2006, Oujda, Morocco. Estimate Spatial Density by Frequency Polygon.
- *SMAI MAS Days, Space Models*, 04-06 September 2006, Lille, France. Kernel regression estimate for continuously indexed random fields.
- *Workshop "Multimodality and related topics"*, March 27-28, 2008, Paris. Mode estimation for functional random variables : application for curves classification.
- *2008 International Conference on Applied Probability*, 07-10 July 2008, Compiègne, France : Functional semi-parametric partially linear model with autoregressive errors.
- *Sixty days of functional and operatorial statistics*, June 18-19, 2009, Dijon, France. Estimation of the regression function and prediction for functional spatial data and applications.

- *Workshop on Challenging problems in Statistical Learning*, April 5 to 6, 2012, Lille, France : Functional estimation in high dimensional data : Application to classification.
- *First conference of the International Society for NonParametric Statistics (ISNPS)*, 15-19 June 2012, Chalkidiki, Greece : Change point detection in functional data.
- *SADA13 Applied statistics for development in Africa*, March, 4-8, 2013. Parametric and Non-parametric estimations for spatial model.
- *Second conference of the International Society for NonParametric Statistics (ISNPS)*, June, 12-16, 2014, Cadiz, Spain : Advances in spatial epidemiological modeling.
- *STAHY 14* November 10-11, 2014, Abu-Dhabi. Streamflow forecasting using functional regression.
- *ERCIM*, 7-8 December 2014, Pisa, Italy : More efficient kernel functional regression estimation with autocorrelated errors.
- *Tunisian Association of Statistics and Applications Conference*, March ,12-13, 2015, Tunisia. Spatial risk estimation and application to biomedical data.
- *African Women in Mathematics Association Conference*, Spatial Risk estimation and Application, July 16-18, 2015, Kenya.
- *Environment Econometrics Journal*, Spatial Risk Estimation and Application to Environmental Data, April, 24, 2016, Rabat, Morocco.
- *CRoNoS FDA, workshop satellite de Compstat2016*
<http://www.compstat2016.org/SatelliteWorkshop.php>. Functional Binary Choice Models with choice-based sampling, 26-28 August, Oviedo, Spain.
- *AAS/AMU symposium on "Current Research Trends in Mathematical Sciences and applications"*. Spatial Risk estimation and Application to biomedical data, 17-20, May 2016, UNESCO Chair of Mathematics, National Mathematical Centre (NMC), Abuja Nigeria.
- *Learning with functional data* (Lille), Functional Binary Choice Models With Choice-Based Sampling, 7 October, 2016, Lille, France.
- *LICMA'17, Lebanese International Conference on Mathematics and Applications*, 16-19, May 2017, Beyrouth, Lebanon. Nonparametric regression models for spatial data.
- *JEF 2017 4th Days of Econometrics for Finance*, Rabat, Morocco, 15-16 July, 2017.
<https://sites.google.com/site/jefconference/home>. Functional autoregressive spatial models.
- *Pan African Congress of Mathematicians 2017*, Rabat, Morocco, 3-7 July, 2017.
<http://www.fsr.ac.ma/PACOM2017/index.php>. Spatial prediction over spatio-functional data.
- *1st International Conference on Econometrics and Statistics*, 15-17, June, 2017, Hong Kong University of Science and Technology, Hong Kong. <http://cmstatistics.org/EcoSta2017/>. Functional autoregressive spatial models.
- *SIS 2017 Statistics and Data Science : New Challenges, New generations*, Florence, Italy, 28-30, June 2017, <http://meetings3.sis-statistica.org/index.php/sis2017/sis2017/index>. Functional linear spatial autoregressive modeling.
- *"First International Conference on Biomathematics in Senegal"*, June 29 to July 01, 2018, Polytechnic School of Thies, Senegal. Spatial nearest neighbor classification and

- prediction. Application to fisheries data in West African coast.
- *"SLDS/Nonparametric Statistics"*, June, 4-6, 2018, Columbia University, NY, USA. Binary Functional Linear Models in a Stratified Sampling setting
 - *MATRIX Conference on FDA*, Functional linear spatial autoregressive modeling, University of Melbourne, Australia, December, 9, 2018.
 - *MATRIX Conference on FDA*, Bridging FDA, cell bio-mechanical phenotype and their biological expressions for Cancer diagnosis. University of Melbourne, Australia, December, 3, 2018.
 - *Environmental Econometric Days ; CE2-18*, December, 19-21, 2018, Nador, Morocco. Bridging Functional Data Analysis and Spatial Data Modeling
 - *7th Statistical Meeting of Avignon-Marseille*, Avignon, France, June, 14, 2019. Quasi-Maximum Likelihood Estimators For Functional Spatial Autoregressive Models.
 - *62st World Statistics Congress*, August, 18-23, 2019, Kuala Lumpur, Malaysia. Education in Developing countries.
 - *NEF (Next Einstein Forum) 2020*, 8-10 december 2020. Panel sur *The contribution of Mathematical Sciences in supporting robust disease prevention and modelling in Africa*.
 - *AIMS South-Africa webinar*, 4 November 2020. *Statistical modeling of Spatial Big data and Applications*.
 - *AWMA Webinar*, 7 January 2021. *The contribution of Mathematical Sciences in supporting robust disease prevention and modelling in Africa*.
 - *INRIA LIRIMA Seminar*, 3 February 2021. *Spatial-functional statistics with applications to environment and health in Africa*.
 - *AERAP Africa-Europe Science Collaboration Platform*, 8-9 December 2021. *Gendergap in Science in Africa*.
 - *Stochastic geometry days, 9th Edition*, , November 15th-19th, 2021, Dunkerque, *Bridging Nonparametric Statistics and Spatial Data Modeling*.
 - *First modelization days in Mayotte*, November, 8th, 2021, Mayotte, *Spatial Econometric modeling and Applications to environment and health*.
 - *JSMDs 2021*, November, 25th-28th, 2021, Hammamet, Tunisia. *Detection of spatial mortality patterns using functional principal components for areal data*.
 - *PASRC Webinar*, October, 25th, 2021. *Spatial Econometric modeling and Applications to environment and health*.
 - *IRN AFRIMATH seminar*, March, 26th, 2021. *Spatial Functional Data Learning and Applications*.
 - Girls and Sciences days *Artificial Intelligence Applied to Health*, 4 November 2022, INRIA, Lille.
 - Colloque International de Statistique et Économétrie (CISEM 2022) *Multivariate Principal Component Analysis and Binary Functional Linear Models under Case-Control Sampling*, 13-15 May, 2022, Mahdia, Tunisia.
 - Colloque International de Statistique et Économétrie (CISEM 2022), *Investigating spatial scan statistics for multivariate functional data*, 13-15 May, 2022, Mahdia, Tunisia.
 - Rencontres des statisticiens et probabilistes, *Investigating spatial scan statistics for multivariate functional data*, 1st, November, 2022, Sousse Tunisia.
 - Black Heroes of Mathematics Conference, *On the enlightened path of an African woman in mathematics*, 4th October 2022, ICM, Edinburgh.
 - Colloque ENSAE, IRD, University Paris Dauphine, *Statistics, Econometrics, Space : Applications to economic growth and management of fishery resources*, 1st November,

- 2022, Dakar, Senegal
- Symposium on Statistics, Probability and Their Applications, *Investigating spatial scan statistics for multivariate functional data*, 2th June, 2023, Oujda, Morocco.
 - Standing Committee for Gender Equality in Science (SCGES). *The global survey of scientists Focus on Mathematics and Africa*, 14th, February 2023, Paris
 - African Women In Mathematics (AWMA) days, *The gender gap in Maths in Africa*, 8th, May, 2023.
 - 30 MIN SCIENCES, *Bridging FDA Learning : to MEMS instrumentation for cell characterization*, 12th April, 2023, Inria, Lille
 - Theory to Practice (T2P), *Bridging FDA Learning : to MEMS instrumentation for cell characterization*, 28th April, 2023, AIMS, Kigali, Rwanda.
 - Math4ML Workshop, *Cluster detection for high dimensional spatial data*, 4th-9th September, 2023, AIMS, Ghana
 - International Conference on Recent Developments in Mathematical Modeling in Biology (3MC), *Investigating spatial scan statistics for multivariate functional data*, 29th-31th March, 2023, NWU, Potchefstroom, South Africa
 - Journées de Statistique Mathématique et Data Science (JSMDS), *Spatial Functional Data Modeling through Gaussian Processes*, 9-12 November 2023, Hammamet, Tunisia
 - ICIAM 2023 mini-symposium Gender Equality in Mathematics : A Global Perspective, *The African perspective about the Gender Gap in Science*, 20-25th, August 2023, Tokyo
 - Seminar QUTHY, *Spatial Functional Data Modeling through Gaussian Processes*, 24 November 2023, EDF, Paris
 - Rencontres des statisticiens et probabilistes, *Bridging FDA : Cell biomechanical phenotype and their biological expressions for cancer diagnostic*, 8th March 2024, Sfax, Tunisia
 - 15th Workshop on Stochastic Models, Statistics and Their Applications (SMSA 2024), *Multivariate Functional Spatial Data : A Principal Component Analysis Approach*, 13th-15th March, 2024, TU Delft, Netherlands
 - Seminar UQAM, *Functional Data Analysis in Complex Dependencies : A PCA Approach for Learning Models*, 17 October 2024, Montréal
 - Seminar IRL CNRS CRM, *Functional Data Analysis : A PCA Approach for Learning Models*, 12 November 2024, Montréal, Canada
 - Seminar Université of Sherbrooke, *Functional Principal Component Analysis and Classification for stratified data*, 20 December 2024, Sherbrooke, Canada
 - Conference SAMPTA 2025, *Dimension reduction properties and supervised learning of complex Functional Data*, July 28th, August 1st, Vienna, Austria
 - First virtual symposium of the African Society for Biomathematics, *Functional Data Analysis : A PCA Approach for Learning Models and Applications to Biology*, 26-27th June, 2025, Virtual.
 - London Mathematical Society, UK/Africa Partnerships , *Mathematics in Africa*, May 14th, Edimburgh

Some students supervision over the last 6 years

- Defended PhD
 1. Zied Gharbi (2019) ; Mamadou Ndiaye (2020) ; Solange Doumun (2021)
 2. Alaa Ali Ayad (2021) in collaboration with Dharini Pathmanathan (Universiti Malaysia, Malaysia)

3. Camille Frévent (2022), Salsabi Yacour (2022).
 4. Issam Moindjé (2023) ; Yoba Kandé (2023)
 5. Christelle Agonkoui (2024), Aneesha Pillay Balachandran Pillay (2024),
Khoo Tzung Hsuen (2024)
- Ongoing PhD
1. Clara Dubois (2023-). PhD project title : Spectroscopie Raman et intelligence artificielle au service de la synthèse en chimie. Co-supervised with Sebastien Legendre, Christophe Dujardin, University of Lille, Centrale-Lille and Horiba
 2. Cécile Verrier (2025-). PhD project title : Modélisation mathématique de l'induction et de l'échappement de la sénescence dans le cancer. Co-supervised with Vanessa Dehault, Alexandre Poulain, University of Lille