MARZIA ANGELA CREMONA

Université Laval
Pavillon Palasis-Prince, local 2449
2325, rue de la Terrasse
Québec (Québec) G1V 0A6 (Canada)

Webpage: marziacremona.com
E-mail: marzia.cremona@fsa.ulaval.ca

CURRENT POSITIONS

- **Chairholder of the Chair in Statistical Learning**, from Sept. 2025.
- **Associate Professor**, Department of Operations and Decision Systems, Université Laval, from Jun. 2023.
- **Adjunct Assistant Professor**, Department of Statistics, The Pennsylvania State University, from Aug. 2019.
- **Researcher**, Population health and optimal health practices axis, CHU de Québec research center, from Nov. 2019.
- **Regular Member**, CIRRELT Interuniversity Research Centre on Enterprise, Networks, Logistics and Transportation, from Dec. 2019.
- **Member**, Center for medical genomics, The Pennsylvania State University, from Dec. 2019.
- **Collaborator Member**, CRDM_UL Big Data Research Center, Université Laval, from Jan. 2020.
- **Member**, IID Institute Intelligence and Data, from Jun. 2020.
- **Member**, LIRSE Laboratoire Interdisciplinaire de la Responsabilité Sociale des Entreprises, from Feb. 2022.
- **Regular Member**, CRM Centre de Recherches Mathématiques, StatLab, from Oct. 2022.

PAST POSITIONS

- **Assistant Professor**, Department of Operations and Decision Systems, Université Laval, Sept. 2019 – May 2023.
- **Bruce Lindsay Visiting Assistant Professor**, Department of Statistics, The Pennsylvania State University, Jul. 2017 – Jun. 2019.
- **Postdoctoral scholar**, Department of Statistics, The Pennsylvania State University, Feb 2016 – Jun. 2017.
- **Visiting scholar**, Department of Statistical Sciences, Università Cattolica del Sacro Cuore, May 2023 – Jul. 2023.
- **Visiting scholar**, Department of Statistics, The Pennsylvania State University, Aug. 2022 – Oct. 2022.
- **Visiting scholar**, Department of Statistics and Center for Medical Genomics, The Pennsylvania State University, Oct. 2014 – Jan. 2015.

RESEARCH INTERESTS

I develop statistical learning and computational techniques for the analysis of large, high-dimensional and complex data – in particular functional data. An important aspect of my research is its collaborative and multidisciplinary nature. Indeed, much of my work is at the interface between statistics and computational biology, while my main application areas are in the biomedical and social sciences.

EDUCATION

Ph.D. (with Distinction) in Mathematical Models and Methods in Engineering, Politecnico di Milano, 2016.
Thesis: Statistical methods for omics data.
Advisor: Prof. Piercesare Secchi; *Co-advisors:* Prof. Laura M. Sangalli, Prof. Simone Vantini.
M.Sc. in Mathematics, Università degli Studi di Milano, 2011.
B.Sc. in Mathematics, Università degli Studi di Milano, 2009.

FUNDING

External

Chairholder of the Chair in Statistical Learning, 2025-2030 (500,000 CAD).
FRSQ Research Scholars Junior 1, principal investigator (individual grant), 2023–2027 (256,943 CAD for salary and 80,000 CAD starting grant for new investigators).
Subvention de recherche de la Fondation des Étoiles, principal investigator, 2023–2024 (16,000 CAD).

FRQS funded initiative, co-investigator, 2023-2026 (100,000 CAD).
NSERC Discovery grant, principal investigator (individual grant), 2020–2026 (120,500 CAD).
Chaire Fintech AMF-Finance Montréal 2023, co-investigator, 2023–2024 (15,000 CAD).
SSHRC Insight development grant, co-investigator, 2020–2023 (60,550 CAD).
MEI NovaScience (training initiatives in artificial intelligence), involved researcher, 2021-2023 (284,241 CAD).

Internal

Start-up research grant, principal investigator, CHU de Québec research center, 2023-2026 (50,000 CAD).
Start-up research grant for new assistant professors, principal investigator, Université Laval, 2019–2025 (30,000 CAD).
Special research grant, co-investigator, Université Laval, 2025-2026 (50,000 CAD).
Research project seed grant, principal investigator, Université Laval, 2024-2025 (10,000 CAD).
Research project seed grant, principal investigator, Université Laval, 2023-2024 (10,000 CAD).
Research project spin-off grant, principal investigator, Université Laval, 2022 (10,000 CAD).
Research project spin-off grant, collaborator, Université Laval, 2022 (10,000 CAD).
Publication support grant, principal investigator, Université Laval, 2025 (3,000 CAD).
Publication support grant, principal investigator, Université Laval, 2024 (6,000 CAD).
Grant for the dissemination of results beyond the academic world, principal investigator, Université Laval, 2022 (1,100 CAD).
Promotion of publication in journals rated A and B, Université Laval, 2025 (1750 CAD).
Promotion of publication in journals rated A and B, Université Laval, 2024 (625 CAD).
Promotion of publication in journals rated A and B, Université Laval, 2023 (4,000 CAD).
Promotion of publication in journals rated A and B, Université Laval, 2022 (2,000 CAD).
Promotion of publication in journals rated A and B, Université Laval, 2021 (5,500 CAD).
Promotion of publication in journals rated A and B, Université Laval, 2020 (2,000 CAD).

AWARDS AND FELLOWSHIPS

Research medal award 2023-2024, Faculty of Business Administration, Université Laval, 2025.
Research medal award 2022-2023, Faculty of Business Administration, Université Laval, 2024.
Research medal award 2020-2021, Faculty of Business Administration, Université Laval, 2022.
Research medal award 2019-2020, Faculty of Business Administration, Université Laval, 2021.
Research medal award 2018-2019, Faculty of Business Administration, Université Laval, 2020.

Socrates teaching award 2023-2024, Faculty of Business Administration, Université Laval, 2024.

Mitacs Globalink Research Award (home academic supervisor), 2025.
Finalist for ISSNAF (Italian Scientists and Scholars of North America) young investigators award – Mario Gerla Award in computer science, 2022.
Best presentation of an ERC IASC Young Researcher at the conference COMPSTAT, 2022.
Mitacs Globalink Research Award (home academic supervisor), 2022.
Finalist for ISSNAF (Italian Scientists and Scholars of North America) young investigators award – Anna Maria Molteni Award in mathematics and physics, 2018.
Best presentation of an Early Career Investigator at the joint conference CFE-CMStatistics, 2017.

Travel support to attend NRC 2018, 20th Meeting of New Researchers in Statistics and Probability, 2018.
Travel support to attend 2017 UCLA CGSI Computational Genomics Summer Institute, Long course, 2017.
Postdoctoral travel award, The Pennsylvania State University, 2017.
International mobility award, Politecnico di Milano, 2014.
Ph.D. scholarship in the field of "Genomic Computing", 2012–2015.

PUBLICATIONS IN PEER-REVIEWED JOURNALS (* co-first authors, † co-corresponding authors)

Submitted and preprint

1. Dang, **Cremona**, Chiaromonte, Lazar (Submitted) An efficient approach to characterize spatio-temporal dependence in cortical surface fMRI data. *arXiv* 2312.16346.
2. Torres-González, **Cremona**, Storer, Ventura, O'Neill, Makova (Submitted) Nuclear mitochondrial sequences in great ape Telomere-to-Telomere genomes. *bioRxiv* 2025.04.24.650511.

3. Torres-González, Arbeithuber, Stoler, **Cremona**, Shebl, Ebner, Tiemann-Boege, Diaz, Chiaromonte, Makova (Submitted) Mammalian mitochondrial DNA accumulates insertions and deletions with age in energetically demanding tissues.
4. **Cremona**, Doroshenko, Severino (Submitted) Functional motif discovery in stock market prices. *SSRN* 4642040.
5. Fathi, **Cremona**, Severino (Submitted) Selection of functional predictors and smooth coefficient estimation for scalar-on-function regression models. *arXiv 2506.17773.*
6. **Cremona**, Sarault, Severino (Preprint) Equity market-neutral strategies using variable selection and regularized regression. *Chair Fintech AMF – Finance Montréal research paper*.

Published

7. Gansou, Oualkacha, **Cremona**, Lakhal-Chaieb (Accepted) A functional approach to testing overall effect of interaction between DNA methylation and SNPs. *Statistics in Medicine*.
8. Boschi*, Di Iorio*, Testa*, **Cremona**†, Chiaromonte† (2026) Contrasting pre-vaccine COVID-19 waves in Italy through Functional Data Analysis. *Scientific Reports* 16: 222.
9. Dang, **Cremona**, Chiaromonte (2025) *smoothEM*: a new approach for the simultaneous assessment of smooth patterns and spikes. *Electronic Journal of Statistics* 19(2): 3835-3866.
10. Ashouri, Phoa, **Cremona** (2025) Analyzing Taiwanese traffic patterns on consecutive holidays through forecast reconciliation and prediction-based anomaly detection techniques. *IEEE Access* 13: 108500-108518.
11. Neumann*, Zghal*, **Cremona**, Hajji, Morin, Rekik (2025) A data-driven personalized approach to predict blood glucose levels in type-1 diabetes patients exercising in free-living conditions. *Computers in Biology and Medicine* 190: 110015.
12. Di Iorio, **Cremona**, Chiaromonte (2025) *funBIalign*: a hierarchical algorithm for functional motif discovery based on mean squared residue scores. *Statistics and Computing* 35:11.
13. Catania, Zanini, **Cremona**, Landa, Musio, Watson, Aleo, Aiken, Sasso, Bagnasco (2024) Nurses' intention to leave, nurse workload and in-hospital patient mortality in Italy: a descriptive and regression study. *Health Policy* 143: 105032.
14. **Cremona**, Chiaromonte (2023) Probabilistic K-means with local alignment for clustering and motif discovery in functional data. *Journal of Computational and Graphical Statistics* 32(3): 1119-1130.
15. Weissensteiner*, **Cremona***, Guiblet, Stoler, Harris, Cechova, Eckert, Chiaromonte, Huang, Makova (2023) Accurate sequencing of DNA motifs able to form alternative (non-B) structures. *Genome Research* 33: 907-922.
16. Jalili†, **Cremona**†, Palluzzi† (2023) Rescuing biologically relevant consensus regions across replicated samples. *BMC Bioinformatics* 24: 240.
17. Severino, **Cremona**, Dadié (2022) COVID-19 effects on the Canadian term structure of interest rates. *Review of Economic Analysis* 14 (4): 473–502.
18. Arbeithuber, **Cremona**, Hester, Barrett, Higgins, Anthony, Chiaromonte, Diaz, Makova (2022) Advanced age increases frequencies of de novo mitochondrial mutations in macaque oocytes and somatic tissues. *Proceedings of the National Academy of Sciences* 119(15): e2118740119. ***Press release***.
19. Boschi, Di Iorio, Testa, **Cremona**†, Chiaromonte† (2021) Functional data analysis characterizes the shapes of the first COVID-19 epidemic wave in Italy. *Scientific Reports* 11: 17054. ***Audio summary***, ***Press release 1, Press release 2***.
20. Guiblet*, **Cremona***, Harris, Chen, Eckert, Chiaromonte†, Huang†, Makova† (2021) Non-B DNA: a major contributor to small- and large-scale variation in nucleotide substitution frequencies across the genome. *Nucleic Acids Research* 49(3): 1497–1516. ***Press release***.
21. Chen*, **Cremona***, Qi, Mitra, Chiaromonte†, Makova† (2020) Human L1 transposition dynamics unrevealed with functional data analysis. *Molecular Biology and Evolution* 37(12): 3576–3600. ***Press release***.
22. Arbeithuber, Hester, **Cremona**, Stoler, Zaidi, Higgins, Anthony, Chiaromonte, Diaz, Makova (2020) Age-related accumulation of de novo mitochondrial mutations in mammalian oocytes and somatic tissues. *PLoS Biology* 18(7): e3000745. ***Press release***.
23. Di Iorio, Chiaromonte, **Cremona** (2020) On the bias of H-scores for comparing biclusters, and how to correct it. *Bioinformatics* 36(9): 2955–2957.
24. Mei, Arbeithuber, **Cremona**, DeGiorgio, Nekrutenko (2019) A high resolution view of adaptive event dynamics in a plasmid. *Genome Biology and Evolution* 11(10): 3022–3034.
25. **Cremona**, Xu, Makova, Reimherr, Chiaromonte, Madrigal (2019) Functional data analysis for computational biology. *Bioinformatics* 35(17): 2311–2313.
26. Guiblet*, **Cremona***, Cechova, Harris, Kejnovska, Kejnovsky, Eckert, Chiaromonte†, Makova† (2018) Long-read sequencing technology indicates genome-wide effects of non-B DNA on polymerization speed and error rate. *Genome Research* 28: 1767-1778. ***Press release***.
27. **Cremona***, Pini*, Cumbo, Makova, Chiaromonte†, Vantini† (2018) IWTomics: testing high-resolution sequence-based "Omics" data at multiple locations and scales. *Bioinformatics* 34(13): 2289-2291.

28. Campos-Sànchez*, **Cremona***, Pini, Chiaromonte†, Makova† (2016) Integration and fixation preferences of human and mouse endogenous retroviruses uncovered with functional data analysis. *PLoS Computational Biology* 12(6): e1004956.
29. **Cremona**, Liu, Hu, Bruni, Lewis (2016) Predicting railway wheel wear under uncertainty of wear coefficient, using universal kriging. *Reliability Engineering and System Safety* 154:49-59.
30. **Cremona**, Sangalli, Vantini, Dellino, Pelicci, Secchi, Riva (2015) Peak shape clustering reveals biological insights. *BMC Bioinformatics* 16:349.

CONFERENCE PROCEEDINGS, ABSTRACTS AND BOOK CHAPTERS

31. Neumann, **Cremona**, Hajji, Morin, Rekik (2026) Exploring the recent applications of artificial intelligence techniques for type-1 diabetes management. In book: *Operations Research and Artificial Intelligence in Healthcare Management* (editors: Landa, Côté, Gartner, Layani, Husson, Capgras, Lemaire).
32. Di Iorio, **Cremona**, Chiaromonte (2025) Amplitude-invariant functional motif discovery. In book: *New Trends in Functional Statistics and Related Fields* (editors: Aneiros, Bongiorno, Goia, Hušková).
33. Arbeithuber, Hester, **Cremona**, Barret, Higgins, Anthony, Diaz, Makova (2021) Advanced age increases frequencies of de novo mitochondrial mutations in macaque oocytes and somatic tissues. Abstracts from the Environmental Mutagenesis and Genomics Society 52nd Annual Meeting. *Environmental and Molecular Mutagenesis* 62(S1): 52-52.
34. Torres-Gonzalez, Arbeithuber, Hester, **Cremona**, Stoler, Higgins, Anthony, Chiaromonte, Diaz, Makova (2020) Duplex sequencing uncovers age-related increase in the frequency of de novo indels in mouse mitochondrial DNA. Abstracts from the 53rd European Society of Human Genetics (ESHG) Conference: e-Posters. *European Journal of Human Genetics* 28(S1): 1007-1008.
35. Eckert, Hile, Guiblet, **Cremona**, Stein, Huang, Chiaromonte, Makova (2020) G-quadruplex sequences are barriers to replicative DNA polymerases and hotspots of mutagenesis. Abstracts from the Environmental Mutagenesis and Genomics Society 51st Annual Meeting. *Environmental and Molecular Mutagenesis* 61(S1): 47-47.
36. **Cremona**, Campos-Sànchez, Pini, Vantini, Makova, Chiaromonte (2017) Functional data analysis of "Omics" data: how does the genomic landscape influence integration and fixation of endogenous retroviruses? In book: *Functional Statistics and Related Fields* (editors: Aneiros, Bongiorno, Cao, Vieu). Springer.
37. **Cremona**, Campos-Sànchez, Pini, Vantini, Makova, Chiaromonte (2016) Functional data analysis at the boundary of "Omics". *Proceedings of IWSM 2016, 31st International Workshop on Statistical Modelling.*
38. Azzimonti, **Cremona**, Ghiglietti, Ieva, Menafoglio, Pini, Zanini (2015) BarCamp: Technology foresight and statistics for the future. In book: *Advances in Complex Data Modeling and Computational Methods in Statistics* (editors: Paganoni, Secchi). Springer.
39. **Cremona**, Pelicci, Riva, Sangalli, Secchi, Vantini (2014) Cluster analysis on shape indices for ChIP-seq data. *Proceedings of SIS 2014, 47th Scientific Meeting of the Italian Statistical Society.*
40. **Cremona**, Riva, Sangalli, Secchi, Vantini (2013) Clustering ChIP-seq data using peak shape. *Proceedings of SCo 2013, 8th Conference on Complex Data Modeling and Computationally Intensive Statistical Methods for Estimation and Prediction.*

SOFTWARE

- **funMoDisco**: Motif Discovery for functional data. *CRAN R package.*
- **rmspc**: Multiple Sample Peak Calling. *Bioconductor R package*.
- **ProbKMA-FMD**: Functional Motif Discovery via ProbKMA. *R code*.
- **IWTomics**: Interval-Wise Testing for Omics Data. *Bioconductor R package* and *Galaxy tool.*
- **SIC-ChIP**: Shape Index Clustering for ChIP-seq peaks. *Command line R script*.

OTHER

- Brès, **Cremona**, Dumas, Outmani, Saulnier (2022) Sustainable procurement in private sector organizations. In book: *2022 sustainable public procurement global review* (United Nations Environment Programme).
- ECPAR Sustainable procurement barometer 2020 (role: scientific support and review).

TEACHING AND SUPERVISION EXPERIENCE

Instructor (full responsibility)

Machine Learning in Business Administration (Winter 2021, Fall 2021, Fall 2022, Fall 2023, Fall 2024, Fall 2025) *Audience:*

business administration MSc and PhD students. Université Laval. *In French.*

Machine Learning in Finance (Winter 2022) *Audience:* finance MSc and PhD students. Université Laval. *In French.*

Introduction to Simulation and Visualization (Winter 2022, Winter 2023, Winter 2025) *Audience:* business administration undergraduates. Université Laval. *In French.*

Probability and Statistics for Business (Fall 2019, Fall 2020, Fall 2021, Fall 2022) *Audience:* business administration undergraduates. Université Laval.

Special Subjects in Quantitative Methods: Statistical Learning Methods and Applications (Winter 2020) *Audience:* business administration Ph.D. students. Université Laval.

Applied Regression Analysis (Fall 2017, Fall 2018) *Audience:* mixed-major undergraduates. The Pennsylvania State University.

Guest lecturer

Biostatistics for dental medicine (Winter 2022, Fall 2022) *Audience*: master students in dental medicine. Université Laval.

Applied Statistics (Fall 2016) *Audience:* non-statistics graduates. The Pennsylvania State University.

Teaching assistant (practice and laboratory class sessions, grading)

Applied Statistics (Spring 2015) M.Sc. in Electrical Engineering, Politecnico di Milano.

Statistics (Fall 2013) B.Sc. in Energy Engineering, Politecnico di Milano. *In Italian.*

Probability and Mathematical Statistics (Spring 2013) B.Sc. in Management Engineering, Politecnico di Milano. *In Italian.*

Tutor (student assistance)

Probability and Mathematical Statistics (Spring 2015) B.Sc. in Management Engineering, Politecnico di Milano.

Basics of Statistics and Biomedical Signals (Spring 2015) B.Sc. in Biomedical Engineering, Politecnico di Milano.

Statistics (Fall 2013, Spring 2014) B.Sc. in Energy Engineering, Politecnico di Milano.

Mathematical Analysis 2 (Spring 2011) B.Sc. in Mathematics, Università degli Studi di Milano.

Mathematical Analysis IV (Spring 2010) B.Sc. in Mathematics, Università degli Studi di Milano.

Student and postdoc supervision

Postdoctoral Scholar

Lyubov Doroshenko (co-supervisor), Department of Finance, Insurance and Real Estate, Université Laval, 2021 – 2024.

Jacopo di Iorio (informal co-supervisor), Department of Statistics, The Pennsylvania State University, 2021 – 2024.

Jacopo di Iorio (informal co-supervisor), Institute of Economics, Sant'Anna School of Advanced Studies, 2020-2021.

Ph.D.

Matteo Fuligni (supervisor), Ph.D. in Operations and Decision Systems, Université Laval, 2026 – In progress.

Nina Frischherz (supervisor), Ph.D. in Operations and Decision Systems, Université Laval, 2025 – In progress.

Amine Saad (co-supervisor), Ph.D. in Statistics, Université Laval, 2025 – In progress.

El Hadji Tamsir Babou Dieng (supervisor), Ph.D. in Operations and Decision Systems, Université Laval, 2025 – In progress.

Hedayat Fathi (supervisor), Ph.D. in Operations and Decision Systems, Université Laval, 2021 – In progress.

Yvelin Gansou (co-supervisor), Ph.D. in Statistics, Université Laval, 2019 – In progress.

Huy Dang (informal co-supervisor), Ph.D. in Statistics, The Pennsylvania State University, 2018 – 2023.

M.Sc.

Yasmina Issoufa Harou (supervisor), M.Sc. with thesis in Biostatistics, Université Laval, 2026 – In progress.

Antoine Bouchard (supervisor), M.Sc. with thesis in Biostatistics, Université Laval, 2025 – In progress.

Mohamed Aziz Mtiri (co-supervisor), M.Sc. with thesis in Operations and Decision Systems, Université Laval, 2025 – In progress.

Yessine Zghal (co-supervisor), M.Sc. with thesis in Operations and Decision Systems, Université Laval, 2024 – In progress.

Bernardo D'Agostino (co-supervisor), M.Sc. in Economics and Managerial Sciences, Sant'Anna School of Advanced Studies, 2025

Kokou Kolani (co-supervisor), M.Sc. in Operations and Decision Systems, Université Laval, 2023 – 2025.

Niccolò Faresini (co-supervisor), M.Sc. in Mathematical Engineering, Politecnico di Milano, 2024.

Hesam Hafezalseheh (supervisor), M.Sc. with thesis in Biostatistics, Université Laval, 2021 – 2024.

Luca Frigato (co-supervisor), M.Sc. in Artificial Intelligence and Information Systems, Università di Torino, 2023 – 2024.

Yessine Zghal (co-supervisor), M.Sc. in Computer Science, École Nationale des Sciences de l'Informatique, 2023.

Séka Alex Pacome Nandjo (supervisor), M.Sc. in Statistics, Université Laval, 2021 – 2023.

Sarah Lafrance (supervisor), M.Sc. with thesis in Operations and Decision Systems, Université Laval, 2022 (withdrawn).

Yuhang (Chloe) Yang (supervisor), M.Sc. in Statistics, University of Minnesota, Twin Cities, 2021 – 2022.

Pathé Conté (co-supervisor), M.Sc. with thesis in Biostatistics, Université Laval, 2020 – 2022.

Alice Parodi (co-advisor), M.Sc. in Mathematical Engineering, Politecnico di Milano, 2013.

M.B.A., B.Sc. and research internships

William Ponczak (supervisor), Research internship for B.Sc. in Computer Science, James Medison University, 2025.
Sara Gerber (supervisor), Research internship for Ph.D. in Statistics, University of Augsburn, 2025.
César Rubelsi Barrera (supervisor), M.B.A. in Business Analytics, Université Laval, 2024 – In progress
Nikelson Michel (supervisor), M.B.A. in Business Analytics, Université Laval, 2024 – In progress.
Ndeye Oulimata Diop (supervisor), M.B.A. in Business Analytics, Université Laval, 2024 – 2025.
Riccardo Lazzarini (supervisor), Research internship for M.Sc. in Mathematical Engineering, Politecnico di Milano, 2024.
Bernardo D'Agostino (supervisor), Research internship for M.Sc. in Data Science and Business Informatics, Università di Pisa, 2023.
Patrice Nlepatio Dagueho (supervisor), M.B.A. in Business Analytics, Université Laval, 2023.
Adeniyi Abdel-Fadhel Youssoufou (supervisor), M.B.A. in Business Analytics, Université Laval, 2022.
Hibat'Allah Talbi (supervisor), M.B.A. in Business Analytics, Université Laval, 2021.
Laila Bentaleb (supervisor), M.B.A. in Business Analytics, Université Laval, 2021.
Ikram Selmi (supervisor), Research internship for B.Sc. in Applied Mathematical Engineering and Modeling, École Nationale Supérieure d'ingénieurs de Tunis, 2020.
Jacopo di Iorio (co-supervisor), Ph.D. visiting period, The Pennsylvania State University, 2019.

Ph.D. thesis committee

Carlo Reillen Lima Martins, Ph.D. in Business Administration – Operations and Decision Systems, Université Laval, 2022.
Guillaume Manseau, Ph.D. in Business Administration – Finance, Université Laval, 2021.
Tobia Boschi, Ph.D. in Statistics, The Pennsylvania State University, 2019 – 2022.

ACADEMIC SERVICE AND OUTREACH ACTIVITIES

Review editor, Frontiers in Genetics (specialty section "Statistical Genetics and Methodology"), from 2023.
Manuscript reviewer, Journal of the Royal Statistical Society: Series C; Electronic Journal of Statistics; Journal of Multivariate Analysis; Annals of Applied Statistics; Statistical Modelling; Statistical Methods & Applications; Stat; Advances in Data Analysis and Classification; Statistics and Computing; International Journal of Forecasting; Stats; Sankhya B; Statistical Applications in Genetics and Molecular Biology; Genome Biology and Evolution; Plant Phenomics; IEEE/ACM Transactions on Computational Biology and Bioinformatics; International Review of Financial Analysis.
Evaluation committee member, FRQS, FRQNT.
Grant reviewer, NSERC, La Sapienza Big Projects.
Abstract reviewer, CSSC 2020, Canadian Statistical Student Conference, 2020.

Organizer, Symposium in Statistical Learning for Complex Data, 2025.
Scientific program committee, ERCIM 2023, joint conference CFE-CMStatistics, 2023.
Session organizer and **chair**, ERCIM 2023, joint conference CFE-CMStatistics, 2023.
Session organizer and **chair**, ERCIM 2021, joint conference CFE-CMStatistics, 2021.
Scientific program committee, ERCIM 2020, joint conference CFE-CMStatistics, 2020.
Session organizer and **chair**, ERCIM 2019, joint conference CFE-CMStatistics, 2019.
Session chair, ENAR 2019 Spring Meeting, 2019.
Session organizer and **chair**, ERCIM 2018, joint conference CFE-CMStatistics, 2018.
Session chair, NRC 2018, 20th Meeting of New Researchers in Statistics and Probability, 2018.
Session chair, Workshop on Emerging Methods for Sequence Analysis, 2018.
Journal club organizer, 2017 UCLA CGSI Computational Genomics Summer Institute, 2017.
Session co-organizer, StaTalk on Biostatistics, 2015.
Conference co-organizer, SCo-BarCamp "Technology Foresight and Statistics for the Future", 2013.

Committee member, Faculty library committee, Université Laval, from 2022.
Committee member, Selection of fixed-term researcher, Sant'Anna School of Advanced Studies, 2023.
Committee member, Penn State Postdoctoral Society outstanding postdoc mentor award, 2018.
Committee member, Penn State Postdoctoral Society outstanding postdoc award, 2017.

Judge, PJAS Pennsylvania Junior Academy of Science, 2018.
Judge and **mentor**, ASA DataFest, 2017-2018.
Judge, PSU Graduate Exhibition, 2017.

Volunteer researcher, European Researchers' nights, 2013-2015.

INVITED PRESENTATIONS

1. Cremona, Di Iorio, Chiaromonte (Jul. 2025) *funBIalign*: a hierarchical algorithm for functional motif discovery. ***HiTEc & CoDES 2025****, Limassol*.
2. Cremona, Fathi, Severino (Jun. 2025) Selection of functional predictors and smooth coefficient estimation for scalar-on-function regression models. ***CMS Summer Meeting 2025****, Québec*.
3. Cremona, Doroshenko, Severino (Jul. 2024) Functional motif discovery in stock market prices. ***EcoSta 2024, 7th International Conference on Econometrics and Statistics****, online*.
4. Cremona, Doroshenko, Severino (Dec. 2023) Functional motif discovery in stock market prices. ***ERCIM 2023, joint conference CFE-CMStatistics****, online*.
5. Cremona (Oct. 2022) Machine learning methods for functional data in "Omics" research. ***ISSNAF Young Investigator Gerla Award Symposium***, *online.*
6. Cremona, Boschi, Chiaromonte (Jul. 2022) Probabilistic clustering with local alignment of Italian COVID-19 death curves. ***IFCS 2022 on "Classification and Data Science in the Digital Age"***, *Porto*.
7. Cremona (Jul. 2022) Local clustering and motif discovery of functional data: applications in "omics", biomedical sciences and finance (*keynote presentation*). ***Workshop EMbeDS***, *online*.
8. Cremona, Boschi, Di Iorio, Testa, Chiaromonte (Jun. 2022) COVID-19 in Italy: characterizing the shapes of epidemic waves through Functional Data Analysis. ***SIS2022, 51st Scientific Meeting of the Italian Statistical Society****, Caserta.*
9. Cremona, Chiaromonte, Makova (Jul. 2021) Functional data analysis of high-resolution "Omics" data. ***ISI WSC 2021, World Statistics Congress***, *online*.
10. Cremona, Boschi, Di Iorio, Testa, Chiaromonte (Apr. 2021) Statistical learning methods for functional data with applications to the study of COVID-19 in Italy. ***CIRRELT webinar****, online*.
11. Cremona, Chiaromonte, Makova (Mar. 2020) Functional data analysis applications to "Omics" sciences. ***Women in Data Science Saguenay***, *Chicoutimi*.
12. Cremona, Chiaromonte, Makova (Dec. 2019) Functional data analysis applications to Omics sciences. ***ERCIM 2019, joint conference CFE-CMStatistics****, London*.
13. Cremona, Chiaromonte, Makova (Dec. 2018) Using Interval-Wise Testing to investigate high-resolution "Omics" data at multiple locations and scales. ***ERCIM 2018, joint conference CFE-CMStatistics****, Pisa.*
14. Cremona, Chiaromonte (Oct. 2018) Probabilistic K-mean with local alignment to locally cluster curves and discover functional motifs. ***Workshop on Advances in Functional Data Analysis: cluster, location and shape***, *Rennes*.
15. Cremona (Oct. 2018) Probabilistic K-mean with local alignment for functional motif discovery. ***ISSNAF Annual Event*** (ISSNAF young investigators award finalists' presentations), *Washington*.
16. Cremona, Chiaromonte (Dec. 2017) Probabilistic K-mean with local alignment for functional motif discovery. ***ERCIM 2017, joint conference CFE-CMStatistics****, London*. Winner of the Early Career Investigator award.
17. Cremona (Jul. 2017) Functional Data Analysis testing and linear modeling for high-resolution "Omics" data. ***2017 UCLA CGSI Computational Genomics Summer Institute****, Los Angeles.*

INVITED DEPARTMENTAL SEMINARS

18. Cremona (Apr. 2025) Local clustering and motif discovery of functional data. ***Quantitative Theory and Methods Seminar at Emory University****, Atlanta*.
19. Cremona (Apr. 2025) Local clustering and motif discovery of functional data. ***Statistics and Data Science Seminar at Auburn University****, Auburn*.
20. Cremona, Dang, Chiaromonte (Jun. 2023) smoothEM: a new approach for the simultaneous assessment of smooth curves and spikes. ***Catholic University of the Sacred Heart***, *Milan*.
21. Cremona, Dang, Chiaromonte (Mar. 2023) smoothEM: a new approach for the simultaneous assessment of smooth curves and spikes. ***DSS Statistics Seminar at the Sapienza University of Rome***, *online*.
22. Cremona, Chiaromonte, Makova (Sept. 2022) Functional data analysis of high resolution "Omics" data. ***Genomics Seminar, The Pennsylvania State University****, University Park*.
23. Cremona, Boschi, Di Iorio, Testa, Chiaromonte (Dec. 2020) The shapes of an epidemic: using functional data analysis to characterize COVID-19 in Italy. ***Université du Québec à Montréal****, online*.

24. Cremona, Boschi, Di Iorio, Testa, Chiaromonte (Nov. 2020) The shapes of an epidemic: using functional data analysis to characterize COVID-19 in Italy. ***R. Clifton Bailey statistics seminars, George Mason University***, *online*.
25. Cremona, Chiaromonte (May 2019) Probabilistic K-mean with local alignment to locally cluster curves and discover functional motifs. ***University of Augsburg***, *Augsburg.*
26. Cremona (Feb. 2019) Using functional data analysis to exploit high-resolution "Omics" data. ***Clemson University***, *Clemson.*
27. Cremona (Feb. 2019) Using functional data analysis to exploit high-resolution "Omics" data. ***American University***, *Washington.*
28. Cremona (Feb. 2019) Using functional data analysis to exploit high-resolution "Omics" data. ***University of Canterbury***, *Chistchurch.*
29. Cremona (Jan. 2019) Using functional data analysis to exploit high-resolution "Omics" data. ***University of Otago***, *Dunedin.*
30. Cremona (Jan. 2019) Using functional data analysis to exploit high-resolution "Omics" data. ***Wayne State University***, *Detroit.*
31. Cremona (Jan. 2019) Using functional data analysis to exploit high-resolution "Omics" data. ***University of Glasgow***, *Glasgow.*
32. Cremona (Jan. 2019) Using functional data analysis to exploit high-resolution "Omics" data. ***University of South Florida***, *Tampa.*
33. Cremona (Nov. 2018) Using functional data analysis to exploit high-resolution "Omics" data. ***Miami University***, *Oxford.*
34. Cremona, Chiaromonte (Mar. 2017) Discovering motifs in "Omics" signals using local clustering of curves. ***Sant'Anna School of Advanced Studies****, Pisa.*

CONTRIBUTED PRESENTATIONS AND POSTERS

35. Di Iorio, Cremona, Chiaromonte (Jun. 2025) Amplitude-invariant functional motif discovery. ***IWFOS 2025 International Workshop on Functional and Operatorial Statistics****, Novara*.
36. Cremona, Boschi, Chiaromonte (Sept. 2022) Probabilistic clustering with local alignment of Italian COVID-19 death curves. ***ECDA 2022 European Conference on Data Analysis***, *online.*
37. Cremona, Dang, Chiaromonte (Aug. 2022) smoothEM: a new approach for the simultaneous assessment of smooth curves and spikes. ***COMPSTAT 2022, 24th International Conference on Computational Statistics***, *online*. Winner of the ERC IASC Young Researcher award.
38. Cremona, Severino, Dadié (Jun. 2022) COVID-19 effects on the Canadian term structure of interest rates. ***ISBIS Conference on "Statistics and Data Science in Business and Industry"***, *Napoli*.
39. Cremona, Dang, Chiaromonte (May 2022) *smoothEM*: a new approach for the simultaneous assessment of smooth curves and spikes. ***SSC 2022 Statistical Society of Canada Annual Meeting***, o*nline.*
40. Cremona, Severino, Dadié (Dec. 2021) COVID-19 effects on the Canadian term structure of interest rates. ***ERCIM 2021, joint conference CFE-CMStatistics***, *online*.
41. Cremona, Boschi, Di Iorio, Testa, Chiaromonte (Jul. 2021) Functional data analysis characterizes the shapes of the COVID-19 epidemics in Italy. ***Statistics 2021 Canada***, *online*.
42. Cremona, Boschi, Chiaromonte (Jun. 2021) Probabilistic local clustering of misaligned functional data: analysis of Italian COVID-19 death curves. ***IWFOS 2021 International Workshop on Functional and Operatorial Statistics***, o*nline*.
43. Cremona, Boschi, Di Iorio, Testa, Chiaromonte (Jun. 2021) Functional data analysis characterizes the shapes of the COVID-19 epidemics in Italy. ***SSC 2021 Statistical Society of Canada Annual Meeting***, o*nline.*
44. Cremona, Chiaromonte (Mar. 2019) Probabilistic K-mean with local alignment for functional motif discovery. ***ENAR 2019 Spring Meeting****, Philadelphia.*
45. Cremona, Chiaromonte (Jul. 2018) Probabilistic K-mean with local alignment for functional motif discovery. ***JSM 2018, Joint Statistical Meetings****, Vancouver.*
46. Cremona (Jul. 2018) Functional data analysis applications in "Omics" sciences. ***NRC 2018, 20th Meeting of New Researchers in Statistics and Probability****, Burnaby.*
47. Cremona, Chiaromonte (Jul. 2018) Probabilistic K-mean with local alignment for functional motif discovery. ***DSSV 2018, Data Science, Statistics & Visualization****, Wien.*
48. Cremona, Campos-Sànchez, Pini, Vantini, Makova, Chiaromonte (Jun. 2017) Functional data analysis of "Omics" data: how does the genomic landscape influence integration and fixation of endogenous retroviruses? ***IWFOS 2017, 4th International Workshop on Functional and Operatorial Statistics****, La Coruña.*
49. Campos-Sànchez, Cremona, Pini, Chiaromonte, Makova (May 2016) Integration and fixation preferences of human and mouse endogenous retroviruses uncovered with functional data analysis (poster). ***The Biology of Genomes****, Cold Spring Harbor.*

50. Cremona, Pelicci, Riva, Sangalli, Secchi, Vantini (Sept. 2014) ChIP-seq peak shape clustering analysis. ***EPIGEN-MiChroNetwork Chromatin Seminar "Gene Regulation through Chromatin Structure"****, Milano.*
51. Cremona, Pelicci, Riva, Sangalli, Secchi, Vantini (Jun. 2014) Cluster analysis on shape indices for ChIP-seq data. ***SIS 2014, 47th Scientific Meeting of the Italian Statistical Society****, Cagliari.*
52. Cremona, Riva, Sangalli, Secchi, Vantini (Sept. 2013) Clustering ChIP-seq data using peak shape (poster). ***SCo 2013, 8th Conference on Complex Data Modeling and Computationally Intensive Statistical Methods for Estimation and Prediction****, Milano.*
53. Cremona, Sangalli, Secchi, Vantini (Jun. 2013) Clustering of ChIP-seq data through peak shape. ***ABS 2013 Applied Bayesian Statistics School "Bayesian Methods for Variable Selection with Applications to High Dimensional Data"****, Como.*

PRESENTATIONS AT HOME INSTITUTION

At Université Laval

54. Cremona (Jan. 2025) Local clustering and motif discovery of functional data. ***Computer Science and Software Engineering Department****.*
55. Cremona (Feb. 2023) Statistical learning methods for functional data: applications in "omics" and biomedical sciences. ***Seminars of CHU de Québec research center****.*
56. Cremona, Chiaromonte (Jan. 2020) Probabilistic K-mean with local alignment to locally cluster curves and discover functional motifs. ***Statistics Department Seminar****.*

At The Pennsylvania State University

57. Cremona (Feb. 2019) Using functional data analysis to exploit high-resolution "Omics" data. ***Statistics Department Colloquium****.*
58. Cremona (Jun. 2018) Discovering functional motifs in "Omics" curves using probabilistic K-mean with local alignment. ***Workshop on Emerging Methods for Sequence Analysis****.*
59. Guiblet, Cremona, Cechova, Harris (Oct. 2017) Non-B DNA affects polymerase progression and error rates in sequencers and living cells. ***Genomics Seminar****.*
60. Cremona (Apr. 2017) Exploiting high-resolution "Omics" data with Functional Data Analysis. ***Statistics Department Seminar****.*
61. Cremona (Feb. 2017) Functional Motif Discovery for "Omics" curves. ***Genomics Seminar****.*
62. Cremona (Nov. 2016) Discovering motifs in "Omics" signals using local clustering of curves. ***Stochastic Modeling and Computational Statistics Seminar****.*
63. Cremona (Oct. 2016) Functional Data Analysis for "Omics" (lighting talk). ***9th Annual Postdoctoral Research Exhibition****.*
64. Campos-Sànchez, Cremona, Pini, Chiaromonte, Makova (May 2016) Integration and fixation preferences of human and mouse endogenous retroviruses uncovered with functional data analysis (poster). ***Center for Medical Genomics Retreat****.*
65. Cremona (Apr. 2016) A functional data analysis approach to omics data. ***Genomics Seminar****.*
66. Cremona (Nov. 2014) Peak shape clustering: an application to GATA-1. ***Medical Genomics Seminar****.*

At Politecnico di Milano

67. Cremona, Parodi (Jul. 2014) Peak shape cluster analysis reveals novel biological insights. ***Workshop on Statistics for Omics****.*
68. Cremona (Apr. 2014) Peak shape cluster analysis reveals novel biological insights. ***IEO-IIT-PoliMi Joint Meeting on Genomic Computing****.*

PARTICIPATION TO CONFERENCES AND SUMMER SCHOOLS

69. CSDS 2020 Third Conference on Statistics and Data Science (Oct. 2021) *online*.
70. Data-driven precision medicine and translational research in the era of big data (May 2020) *online*.
71. Journée québécoise de valorisation des données CRDM-IVADO (Oct. 2019) *Québec*.
72. Rao Prize Conference (May 2019) *University Park*.
73. ENAR 2019 Workshop for Junior Biostatisticians in Health Research (Mar. 2019) *Philadelphia*.
74. Center for Medical Genomics Retreat (May 2018) *Hershey*.
75. 50th Anniversary Conference, Department of Statistics (May 2018) *University Park*.
76. 2017 Bioinformatics and Genomics Retreat (Sept. 2017) *University Park*.
77. 2017 UCLA CGSI Computational Genomics Summer Institute, Long course (Jul. 2017) *Los Angeles*.
78. Rao Prize Conference (May 2017) *University Park*.
79. 2018 Bioinformatics and Genomics Retreat (Sept. 2016) *University Park*.
80. ISNPS Meeting 2015, Biosciences, Medicine and novel Non-Parametric Methods (Jul. 2015) *Graz*.
81. IWFOS 2014, 3rd International Workshop on Functional and Operatorial Statistics (Jun. 2014) *Stresa*.

82. ABS 2013, Applied Bayesian Statistics School “Bayesian Methods for Variable Selection with Applications to High Dimensional Data” (Jun. 2013) *Como*.
83. NETTAB 2012, Integrated Bio-Search (Nov. 2012) *Como*.

MEMBERSHIPS IN PROFESSIONAL SOCIETIES AND NETWORKS

SSC Statistical Society of Canada.
IMS Institute of Mathematical Statistics.
Bernoulli Society.
CMStatistics (team FDA: Functional Data Analysis).
SIS Italian Statistical Society (and ClaDAG Classification and Data Analysis Group).
CMDO Research Network in Cardiometabolic Health, Diabetes and Obesity.
SMBE Society for Molecular Biology & Evolution.
ISSNAF Italian Scientists and Scholars of North America Foundation.

WORK EXPERIENCE

Analyst in planning and gas portfolio optimization. A2A Trading S.r.l., Milano, Sept. 2011 – Oct. 2012.

LANGUAGES

Italian (mother tongue), English (proficient), French (proficient).

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