Pierre Lafaye de Micheaux

(20 December 2024)

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CURRICULUM VITAE

Identification

Pierre Lafaye de Micheaux

Married with two children
Citizen of Canada, France, Switzerland; permanent resident of Australia

Institution
School of Mathematics and Statistics *maths.unsw.edu.au*

Professional address
UNSW Sydney
The Red Centre, Centre Wing, Kensington NSW 2052, Australia
E-mail : lafaye@unsw.edu.au

Office: ????
Telephone: (00.[+612]).9385.7029
Web site: *neurostatistician.eu*

Honorary positions

- Associate researcher in the PreMeDICaL team at Inria Sophia Antipolis.
- Associate researcher in the Desbrest Institute of Epidemiology and Public Health (IDESP).
- Member of uDASH *science.unsw.edu.au/engagement/data-science-hub*, the UNSW Data Science Hub
- Member of UNSW AI Institute *unsw.edu.au/unsw-ai*, the flagship UNSW Research Institute in artificial intelligence, data science and machine learning.
- Affiliate "Maitre de Conférences", Université Paul Valéry Montpellier 3. *univ-montp3.fr*

Degrees

2021 Promoted to the "Hors classe" (distinguished) level as a Maitre de Conférences by the French Ministry of Research and Education (Conseil National des Universités).

2019 Qualified by the French Ministry of Research and Education (Conseil National des Universités) to apply for tenured Full Professor positions in Applied Mathematics.

2014 Qualified by the French Ministry of Research and Education (Conseil National des Universités) to apply for tenured Full Professor positions in Applied Mathematics.

2007 **Masters of Science in Cognitive Neuroscience**, Highest honors (First in one's year), Grenoble Institute of Technology (France).

2003 Qualified by the French Ministry of Research and Education (Conseil National des Universités) to apply for tenured Assistant Professor positions in Applied Mathematics.

2003 **Ph.D. in Statistics** (cotutelle France-Québec). Awarded on March 4 2003.
Thesis attended at Université de Montréal and Université Montpellier 2 (video conferencing), 16/12/2002.
Title: *Independence tests in multivariate analysis and normality tests in ARMA models.*
Supervisors: G. Ducharme (Montpellier 2), M. Bilodeau (Montréal). External examiners: J. Diebolt (Marne-la-Vallée), A. Feuerverger (Toronto). Examining board: R. Cléroux (Montréal), Y. Escoufier (Montpellier 2).

1998 **Master of Science degree in Biostatistics** (D.E.A.), High honors (Second in one's year), Université Montpellier 2, Agronomy and Health. Postgraduate diploma specialised in Applied Statistics taken before starting a Ph.D. (1 year).

1997 **Master's degree in Mathematical Engineering**, High honors (First in one's year), Université Montpellier 2, Option *Probability and Statistics*. Graduate degree specialised in Statistical Engineering (1 year).

1996 **Bachelor's degree in Pure Mathematics**, High honors, Université Montpellier 2 (France).
Bachelor's degree in Mathematics.

1994 DEUG A MP', High honors, Université Montpellier 2, Option *Sciences and the Structure of Matter*.
Diploma taken after two years at university (ordinary degree equivalent). **Mathematics and Physics**.

Academic positions

2020/01– Associate Professor (with tenure) at UNSW Sydney, Australia.

2020/09– Assistant Professor (with tenure), Université Paul Valéry Montpellier 3, France.

2019/02–2021/12 Associate Investigator at ACEMS *acems.org.au*, the Australian Research Council Centre of Excellence for Mathematical and Statistical Frontiers.

2017/02–2019/12 Senior Lecturer (tenure track) at UNSW Sydney, Australia.

2016/09–2019/08 Affiliate Associate Professor at Université de Montreal, Canada.

2015/09–2017/02 Professor of Statistics (with tenure) at ENSAI, France.

2013/07–2014/07 Senior Visiting Fellow to the *Departement of Statistics* and to the *School of Psychiatry* (Centre for Healthy Brain Ageing) of UNSW Sydney (Australia).

2011/06–2016/09 Associate Professor (with tenure) at Department of Mathematics and Statistics, Université de Montréal.

2009/08–2011/06 Assistant Professor (tenure track) at Department of Mathematics and Statistics, Université de Montréal.

2007/09–2010/09 Affiliate Researcher at Grenoble Neuroscience Institute, in the Functional and Metabolic Neuroimaging team.

2003/08–2020/08 Assistant Professor (with tenure), Institut Universitaire de Technologie 2, Univ Grenoble Alps (Univ Pierre Mendès France). Member of Laboratoire Jean Kuntzmann, Department of Statistics.

2003/06–2003/08 Post-doc at the Brain Imaging Center, McGill University, Montréal, with Professor K. Worsley.

2003/01–2003/05 Post-doc at the Centre de Recherches Mathématiques de Montréal, with Professor C. Léger.

INDUSTRY ENGAGEMENT

Consulting

2021 Cluey Learning. *clueylearning.com.au*

2016 Statistical consultant for BNP Paribas. *www.bnpparibas.com*

2011 Statistical consultant for Olea Medical. *www.olea-medical.com*

2011 Statistical consultant for Danone Research France. *www.nutricia.com/en/nutricia-research*

2008 ► Co-founder of the statistical consulting service of the SAGAG team. *biostatisticien.eu/SAGAG-consulting*
► Shareholder and co-founder member (with J.-F. Robineau *et al.*) of the start-up CQLS whose aim was to analyze biotechnology data. Operations have now ceased.

2007 Statistical consultant for the company Minvasys, which conceives drug eluting stents. *www.minvasys.com*

2006–2007 Statistical consultant for the company BioArtificial Gel Technologies. This company, which was a dermo pharmaceutical Canadian private company based in Montréal, developped and marketed systems for the progressive release of active agents based on a hydrogel technological springboard.

2001 Statistical consulting course at Université de Montreal - two terms, successfull with A+ mark - STT6530(1). Participation in statistical consulting projects involving computing aspects, written and oral results presentation. Ethical aspects in the consultation. Meetings with professionals from various areas and solving of their statistical problems.

2000 Centre de Pharmacologie Clinique Appliquée à la Dermatologie - Nice - 1 month. Statistical consulting with SAS software in pharmaceutical field.

1999 Assurance Mutuelle des Motards - Montpellier, France - 4 months. *www.mutuelledesmotards.fr*
Time to first accident and associated risk factors (survival analysis, logistic regression).
Development of a computing tool with Excel and Visual Basic.

1997 Centre Hospitalier de Réadaptation Sociale Chauliac Rauzy - Celleneuve, France - 1 month.
Development of the specifications for a database software to handle patients.

Other industry activities

- Presentation "Data Science in Maths and Stats at UNSW", Advisory Board, School of Mathematics & Statistics (23/05/2019)
- Presentation "Co-op Scholars, Student Internships", School of Mathematics & Statistics, Strategic Retreat (28/09/2018)
- Leading the organisation of the first UNSW Datathon; judge for the results of the competition; invited to give an R workshop by the Event Director of UNSW Data Science Society (2018)
- I secured $30,000 of funding from the Mitacs Accelerate Research Internship Program that was used by a MSc student to work at Odotech, an environmental technology company that specializes in monitoring and managing odours, gaseous contaminants and dust (2013–2014), Montreal.
- CIFRE with Danone: Joint supervision (with B. Liquet and S. Marque) of the PhD thesis of J. Riou "Multiplicity of tests, and computation of sample size in clinical research" (2010–2013), Bordeaux Segalen University.

SCIENTIFIC ACTIVITIES & RESPONSIBILITIES

Contribution to organization

Administrative responsibilities

UNSW Sydney, School of Mathematics and Statistics

2017-2019 Academic Director of UNSW Co-op program for Advanced Mathematics and Data Science & Decisions.
2017-2018 Statistics Web & Online Activities; Casual Tutor Mentoring.

Université Paul Valéry Montpellier 3

2021-2023 Co-organiser of the "Marathon du Web" and coordinator of TER projects in the MIASHS Master's Year 1 program.
2020-2021 Head of the MIASHS Bachelor's Year 2 program.

Université de Montréal, Department of Mathematics and Statistics

2014-2015 Computing committee (member).
2010-2013 President of the computing committee; Statistics Graduate Students Seminar (organizer).
2009-2010 Computing committee; Internationalization committee; Statistics Graduate Students Seminar (organizer).

Université Pierre Mendès France, Département STID de l'IUT2

2003-2009 Academic computing coordinator for the STID department.
2007-2009 Manager of the computing equipment of the team 'Applied Statistics and Random Geometry'.

Elective responsibilities

2022-2023 Recruitment Commitee of Grenoble Alps University, Faculty of Economy (03/05/2023, 16/05/2023)
2007-2008 Scientific Council of Université Pierre Mendès France (04/2007–03/2008)
Recruitment Commitee of Université Pierre Mendès France (02/2007–06/2008)

Outreach activities

- UNSW Mathematics Teachers Professional Development Day, "Discrete Random Variables" (01/11/2018) maths.unsw.edu.au/highschool/maths-teachers-pd-day
- Girls do the maths (19/05/2017) maths.unsw.edu.au/highschool/girls-do-maths
- Member of The Australian-French Association for Research and Innovation (AFRAN) since 2017 afran.org.au

Other ongoing and past contributions (since 2017)

- Member of the bachelor committee for the "Licence MIASHS" (2021, 2022, 2023).
- Member of The UNSW Data Science Hub science.unsw.edu.au/engagement/data-science-hub (2021–).
- Co-leader in the creation of the UNSW-Keypath partnership for the creation of a fully online Master of Data Science (2019).
- Co-leader in the creation of the Visualisation Equipment Lab, a room fully equipped with virtual reality devices (2020).
- Mentoring of junior academic colleagues (2017–).
- Participant in the 2018 School of Mathematics & Statistics strategic retreat to elaborate our four-year strategic plan (27-28/09/2018)
- Panel member and speaker at our postgraduate students workshop on "Writing mathematical papers (with a special focus on Statistics)" (20/09/2018)
- Exam assessor for DATA5002 "Data Visualisation" (2024), MATH1041 "Statistics for Life and Social Sciences" (2020); MATH2089 "Numerical Methods and Statistics" (2019); MATH2901 "Higher Theory of Statistics" (2018); DATA1001 "Introduction to Data Science and Decisions" (2017)

Early career personal initiatives (before 2006)

2005 Implementation of a computing backup system for the Statistics Department (LabSAD)
Installation of Koha, an Open Source Integrated Library System to manage the library of the Statistics Department
2004 Leading the creation of a new website of the Statistics Department
1999 Designing and webmastering of the website of the Master of Biostatistics at University of Montpellier
Treasurer of Association Montpelliéraine des Etudiants en Biostatistique (A.M.E.B.)

MSc and PhD committees

2024 - Hongyu Xu, Masters thesis, *Rating Players of Counter-Strike: Global Offensice Based on Plus/Minus*, UNSW Sydney. (Internal examiner)

- Tsung Lin Wu, Honours research thesis, *Characterizing Stimulus-Evoked Brain Electrical Activity using the Hellinger Correlation*, UNSW Sydney. (Internal examiner)
- William Dang, Honours research thesis, *Investigating young driver speeding behaviour in school zones using naturalistic driving study data*, UNSW Sydney. (Internal examiner)

2023 - Rahul Ahluwalia, Honours research thesis, *Data Augmentation for Extreme Value Forecasting Using Deep Learning*, UNSW Sydney.

2022 - Simon Roberts, Honours research thesis, *Count Time Series and the Discrete Copula Probability Mass Function*, UNSW Sydney.

- Zhaoyuan Ding, Masters thesis, *Deep Learning Algorithms for Option Price Model Prediction*, UNSW Sydney.

2021 - Aurélien Callens, Ph.D. thesis, *Statistical learning for coastal risks assessment*, Université de Pau et des Pays de l'Adour, Pau. (**External examiner**)

2020 - Staerman Guillaume, Ph.D. thesis half-way examination, *Functional Anomaly Detection and Robust Estimation*, Télécom Paris, Paris. (**Mid-term review external examiner**)

- Angshuman Roy, Ph.D. thesis, *On Tests of Independence among Multiple Random Vectors of Arbitrary Dimensions*, Indian Statistical Institute, Kolkata. (**External examiner**)
- Chen Xuan Yang, Honours research thesis, *Copulas for Binary Responses Given Explanatory Variables*, UNSW Sydney. (Internal examiner)
- Yixuan He, Masters thesis, *Bayesian Neural Networks for Stock Market Forecasting Before and During Covid-19 Pandemic*, UNSW Sydney. (Internal examiner)

2019 - Christopher Chung, Masters thesis, *Diagnostic Plots for Multivariate Normality*, UNSW Sydney. (Internal examiner)

- Ian Powell, Honours research thesis, *Blood from the stine: methods for population attributable fractions with insufficient information*, UNSW Sydney. (Internal examiner)

2018 - Shaon Chowdhury, Masters thesis, *Variational Autoencoders for Natural Language Understanding*, UNSW Sydney. (Internal examiner)

- Alexander Lam, Honours research thesis, *Density Ratio Estimation in Variational Bayseian Machine Learning*, UNSW Sydney. (Internal examiner)
- Qianhe Zhou, Masters thesis, *Distance Covariance Analysis*, UNSW Sydney. (Internal examiner)

2017
- Tarik Bahraoui, Ph.D. thesis, *Tests de type fonction caractéristique en inférence de copules*, Université de Sherbrooke. (**External examiner**)
- Phan Harris, Honours research thesis, *Simultaneous Quantile Regression Estimation with Approximate Bayesian Computation*, UNSW Sydney. (Internal examiner)
- Ben Maslen, Honours research thesis, *Power Simulation of Multivariate Abundance Data in Ecology*, UNSW Sydney. (Internal examiner)

2015
- Serge Vicente, *Le partitionnement de données et le problème de sélection de variables en régression linéaire : une approche par le processus ponctuel déterminantal*, Université de Montréal. (Predoctoral exam)
- Joseph Tagne, *Sur les tests d'ajustement dans les modèles de séries chronologiques*, Université de Montréal. (Predoctoral exam)
- Mylène Teasdale, Masters research thesis, *Développement d'un modèle de classification probabiliste pour la cartographie du couvert nival dans les bassins versants d'Hydro-Québec à l'aide de données de micro-ondes passives*, Université de Montréal. (Internal examiner, president of jury)
- Paule Marjolaine Bodson-Clermont, Masters research thesis, *Modélisation statistique de l'érosion de cavitation d'une turbine hydraulique selon les paramètres d'opération*, Université de Montréal. (Internal examiner)

2014
- Walid Alakhras, Ph.D. thesis, *Procédure diagnostique en arbre utilisant les tests d'adéquation*, Université de Montpellier. (**External examiner**)
- Alexandre René, Internship thesis, *Indice de profitabilité de vente*, Université de Montréal. (Internal examiner, president of jury)

2013
- Hervé Tchouake Tchuiguep, Masters research thesis, *Estimation utilisant les polynômes de Bernstein*, Université de Montréal. (Internal examiner, president of jury)
- Fabiola Bene Tchaleu, rapport de travaux dirigés de maîtrise, *Couplage d'enregistrements en échantilonnage*, Université de Montréal. (Internal examiner)
- Pierre Luc Cyr, Masters research thesis, *Modélisation de l'espérance de vie des clients en assurance*, Université de Montréal. (Internal examiner)
- Isabelle Pelletier, Ph.D. thesis, *Neuroimagerie fonctionnelle du langage et de la mémoire chez des personnes ayant des atteintes neurologiques*, Université de Montréal. (Representative of the Dean)
- Mouloud Belbahri, Internship thesis, *ADTR - Accès à distance en temps réel, Statistiques Canada*, Université de Montréal. (Internal examiner, president of jury)

2011
- Romain Kadje Kenmogne, *Fonctions polynomiales de dépendance de Pickands à plusieurs variables et estimation Bayésienne non-paramétrique de la mesure spectrale*, Université de Montréal. (Predoctoral exam)
- Catalina Butnariu, Internship thesis, *Optimisation de l'allocation dans le cadre de l'enquête auprès des peuples autochtones*, Université de Montréal. (Internal examiner, president of jury)
- Matei Mireuta, Master, *Étude de la performance d'un algorithme Metropolis-Hastings avec ajustement directionnel*, Université de Montréal. (Internal examiner)
- Maciej Augustyniak, *Regime-Switching GARCH Models and Investment Guarantees*, Université de Montréal. (Predoctoral exam)
- Audrey Béliveau, Master, *Estimation simplifiée de la variance dans le cas de l'échantillonnage à deux phases*, Université de Montréal. (Internal examiner)
- Christian Nambeu, Master, *Imputation en présence de zéros*, Université de Montréal. (Internal examiner)

Service to discipline

Mentoring

- **2022** Mentoring of Dr Amy Page (adjunct research fellow, Centre for Medicine Use and Safety, Monash University) through the SSA mentoring program.

Editorial boards

- **2023–present** Editorial Board Member of ACM Transactions on Probabilistic Machine Learning (TOPML) (dl.acm.org/journal/topml) with Gold Open Access.
- **2017–present** Section Editor of Journal of Statistical Software (jstatsoft.org).
- **2013–present** Member of the editorial committee of the PratiqueR collection (French), Edition Diffusion Presse Sciences (`https://laboutique.edpsciences.fr/collection/60/Pratique%20R`).

Paper reviewing for journals and conferences

Publons profile: `https://publons.com/author/1309876/pierre-lafaye-de-micheaux#stats`

76 reviews for **36 journals**:

Advances in Data Analysis and Classification; Advances in Statistical Analysis; Annals of Statistics; Australian & New Zealand Journal of Statistics; Bernoulli; Canadian Journal of Statistics; Cognitive Computation; Computational Statistics; Communications in Statistics - Simulation and Computation; Computational Statistics and Data Analysis; F1000 Research; Frontiers in Human Neuroscience; Heredity; Insurance: Mathematics and Economics; International Statistical Review; Iranian Journal of Science and Technology Transactions A: Science; Journal of Computational and Graphical Statistics; Journal of the Korean Statistical Society; Journal of Multivariate Analysis; Journal of Statistical Computation and Simulation; Journal of Statistical Planning and Inference; Journal of Statistical Software; Journal of Testing and Evaluation; Journal of Time Series Analysis; Mathematical Reviews; METRON; Physica A: Statistical Mechanics and its Applications; PLOS One; Statistical Methodology; Statistical Papers; Statistics - A Journal of Theoretical and Applied Statistics; Statistics and Computing; Statistics and Probability Letters; Statistics in Biosciences; TEST; The Polish Statistician.

1 review for **1 conference**:

Medical Image Computing and Computer Assisted Intervention (MICCAI) Proceedings.

Grant reviews

- **2025** Grant assessor for a Tier 2 Canada Research Chair in Statistical Learning (Canada).
- **2019** Grant assessor for a Tier 2 Canada Research Chair in Statistical Learning (Canada).
- **2019** Grant assessor for FONDECYT, main Chilean funding agency for scientific and technological research (Chile).
- **2018** Panel member of NSERC Research Tools and Instruments grant program (Canada).

Organization of conferences

- **2020–2022**, member of the association AGUAi (Australasian GenStat Users Association Inc.), in charge of organizing the Australasian Applied Statistics Conference, postponed to 2022 because of the Covid crisis.
- **2017** Scientific Program Committee Member, "Rencontres R 2017" (Anglet, France).

Career and professional development training

- **2019** UNSW Cyber Security Awareness; Sexual Misconduct Awareness; Supervising Research: Supporting HDRs' Academic Reading and Literature Review; Responsible Employee Refresher.
- **2018** Employee Orientation: What Everyone Needs to Know; Employee Orientation: Managers and Supervisors; Research integrity; UNSW Research Integrity assessment.
- **2017** Employee Workshop myCareer "Year Ahead"; Visualisation Matters; Research collaboration and funding opportunities with Canada; ARC Future fellowship workshop; ARC Discovery Rejoinder workshop; Supervising Research: Supporting HDRs' Thesis Writing; Starting a conversation about your research with impact; UNSW Environmental Awareness; Orientation to research; Writing an application for promotion; Extending your research: The How and Why of writing for "The Conversation"; Workshop on promotion process; Welcome to UNSW Australia meeting; Responsible Employee (Online); Work Health & Safety Awareness; Ergonomic & Manual Tasks.
- **2009** Initiation to university teaching for new professors.

Research supervision

I was granted for 4 years (2021–2025) a competitive Prime d'Encadrement Doctoral et de Recherche (PEDR; Bonus for Supervising and Research) by the French government.

M.Sc. or Honours	PhD	Post-doc
28	10	1

Table 1: Current or past students.

- **Post-doc students**

2016–2018 - Chunhao Cai, (joint supervision with L. Truquet), ÉNSAI.
https://researchgate.net/profile/Chunhao_Cai

- **Ph.D. students**: see genealogy.ams.org/id.php?id=64219

2025– - Khue Tran (joint supervision with G. Geenens and A. Zamani), UNSW Sydney.

2024– - Zelong Bi, *Multivariate dependence measures* (joint supervision with G. Geenens), UNSW Sydney.

2023– - Amuchechukwu Henrietta Ibenegbu, *Spatio-Temporal Disease Mapping of Prevalence of High Blood Pressure in Nigeria Using INLA* (joint supervision with R. Chandra), UNSW Sydney.

2021– - Qian Jin, *Statistical Analysis of Medical Scanner Images of the Lungs using Deep Learning Techniques* (joint supervision with C. Grazian), UNSW Sydney.

2020– - Rianti Siswi Utami, *Joint Models of Longitudinal Data and Recurrent Events with Time-varying Covariates and a Dependent Terminal Event* (joint supervision with J. Olivier), UNSW Sydney.
https://scholar.google.co.id/citations?user=3VkgkXEAAAAJ&hl=en

2021–2024 - Marie Felicia Beclin, *Development of intelligent models from CT imaging data of patients undergoing treatment with Benralizumab* (joint supervision with N. Molinari), Université de Montpellier.
https://mariefeliciabeclin.github.io/

2022–2023 - Mian Wang, *A data science approach to build personalized pathways for university or high school students studying mathematics* (joint supervision with L. Helme-Guizon and J. Kress), UNSW Sydney. Dropped out.

2017–2023 - Guillaume Boglioni Beaulieu, *Validating dependence assumptions in actuarial risk modelling* (joint supervision with B. Avanzi and B. Wong), UNSW Sydney.
linkedin.com/in/guillaume-boglioni

2011–2016 - Joseph Francois Tagne Tatsinkou, Ph.D. thesis attended on 2016/04/21, *Smooth Goodness-of-fit tests in Time Series Models* (joint supervision with P. Duchesne), Université de Montréal. linkedin.com/in/frantagne

2010–2013 - Jérémie Riou, Ph.D. thesis attended on 2013/12/11, *Multiplicity of tests, and computation of sample size in clinical research* (joint supervision with B. Liquet and S. Marque), Université de Bordeaux Segalen.
https://researchgate.net/profile/Jeremie_Riou

2008–2011 - Bastien Marchina, Ph.D. thesis attended on 2012/12/12, *Goodness-of-fit tests based on characteristic functions* (joint supervision with Gilles Ducharme, MSER Grant), Université Montpellier II.
Now secondary school teacher in mathematics, clg-cahuzac-quarante.ac-montpellier.fr

- **M.Sc. students and Honours students**

2025 - Bodu Gong, Honours at UNSW Sydney, *Complex-valued neural networks*, Sydney.

2023 - Zelong Bi, Honours at UNSW Sydney, *Data Stream Analysis - Update Statistics and Online Learning over a Sliding Window*, Sydney.

- Steven Lim, Honours at UNSW Sydney, *A Wassersten Distance Based Goodness-of-fit Test for a Bivariate Uniform Distribution* (joint supervision with Y. Fan), Sydney. Recipient of the Data61-uDASH Ambassador Program in 2023.

- Roger Huang, Honours at UNSW Sydney, *Approximate Bayesian Computation with Hamiltonian Monte Carlo* (joint supervision with Y. Fan), Sydney. Recipient of the Data61-uDASH Ambassador Program in 2023.

2022 - Yang Li, Masters at UNSW Sydney, *Literature reviews in science: why and how with a special focus on the Raspberry Pi in scientific and medical research*, Sydney. (Dropped for personal reasons.)

- Ellen Wang, , Honours at UNSW Sydney, *Lacune Detection Using Random Forests* (joint supervision with J. Jiang and A. Poterie), Sydney.

2021 - Ruoyu Wang, Master of Biostatistics at Université de Montpellier, *Machine Learning Tools for the Analysis of Scanner Images of the Lungs* (joint supervision with N. Molinari), Montpellier.

- Robert Cantwell, Honours at UNSW Sydney, *Towards a Self-Contained Theory for Stochastics in the Complex Plane* (joint supervision with G. Geenens), Sydney. Was awarded a University Medal.

- Andy Yu, Honours at UNSW Sydney, *Examining the Heritability of the Spatial Distribution of Brain White Matter Fibre Tracts Using Diffusion Tensor Imaging Scans of OATS by employing Data Curves' Depths* (joint supervision with P. Mozharovsky, M. Vimond and W. Wen), Sydney.

- Alex Zhu, Honours at UNSW Sydney, *R on Raspberry Pi: the RaspberryPiR Package for Collecting and Analysing streaming Data* (joint supervision with P. Mozharovsky and F. Navarro), Sydney.

2020 - Min Sun, Masters at UNSW Sydney, *Classification of Functional Data* (joint supervision with G. Geenens), Sydney.

- Kai Lin, Masters at UNSW Sydney, *Brain Age Prediction Using Machine Learning on the Diffusion Tensor Imaging of White Matter* (joint supervision with Wei Wen), Sydney.

- Simon Ho, Masters at UNSW Sydney, *Using a Multilayer Feedforward Neural Network for Normality Testing*, Sydney.

2019 - James Tian, Honours at UNSW Sydney, *Complex Numbered Linear Regression*, Sydney.

- Muyun (Ivan) Zou, Honours at UNSW Sydney, *Synthetic Dependence Tests Based on Deep Learning* (joint supervision with G. Geenens), Sydney.

2018 - Keren Zhang, Masters at UNSW Sydney, *Datathons: What Can We Gain from Them?*, Sydney.

- Han Wang, Masters at UNSW Sydney, *Geographically Weighted Sparse Generalized Principal Component Analysis*, Sydney.

- Melinda Mortimer, Honours at UNSW Sydney, *Deep Learning Methods for Lacune Detection in MRI* (joint supervision with W. Wen), Sydney.

- Ardi Wira Sudarmo, Masters at UNSW Sydney, *IndepoweR: an R package to assist Monte-Carlo simulation of power analysis of independence tests*, Sydney.

- Jasmine Bermas, Masters at UNSW Sydney, *Supervised Partial Least Squares Approach for Classification of Mass Spectrometry Data*, Sydney.

- Minxi Feng, Masters at UNSW Sydney, *Deep Partial Least Squares Regression*, Sydney.

- Yunan Xu, Masters at UNSW Sydney, *Online PCA Algorithms with Application of Face Recognition*, Sydney.

2017 - Guillaume Boglioni Beaulieu, Master at DMS, UdeM, *A consistent test of independence between random vectors*, Montréal.

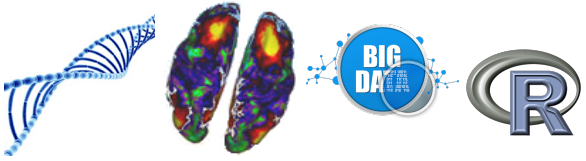
2014 - Iban Harlouchet, Master at DMS, UdeM, *Optimisation d'algorithme d'analyse d'empreintes olfactives (In French)*, Montréal.

2013 - Viet Anh Tran, Master at DMS, UdeM, *Le package `PoweR` : un outil de recherche reproductible pour faciliter les calculs de puissance de certains tests d'hypothèses au moyen de simulations de Monte Carlo (In French)*, Montréal.

- Marc-olivier Billette, Master at DMS, UdeM, *Analyse en composantes indépendantes avec une matrice de mélange éparse (In French)*, Montréal.

2012 - Philippe Delorme, Master at DMS, UdeM, *Approximations to the determination of the sample size for testing multiple hypotheses when r among m hypotheses must be significant (In French)*, Montréal.

2008 - Bastien Marchina, Master 2 ICA, *On the effect of parameter estimation in limiting χ^2 U- and V-statistics involving complex-valued components*, attended on 2008/11/09 in Grenoble.



Conferences and seminars

Invited (and attended) conferences	Com. in conferences	Seminars	Colloquium
16	58	33	1

Invited conferences[1]

Montpellier, France (2019). Brisbane, Australia (2019). Barcelona, Spain (2018). Auckland, New-Zealand (2017). Solo, Indonesia (2016). Sevilla, Spain (2016). Rennes, France (2016). Beijing, China (2014). Sydney, Australia (2014). Ho Chi Minh, Viet Nam (2013). Kobe, Japan (2012). Bordeaux, France (2012). Sherbrooke, Canada (2010). Hyderabad, India (2009). Montpellier, France (2004).

International and national communications, proceedings[2]

[C58] **2023 Beclin M.-F.**, Lafaye de Micheaux P., Molinari N., Regression Models for Quantile Function Data Applied to CT-Scans of Asthmatic Patients. *IMS International Conference on Statistics and Data Science*, Lisbon, Portugal, 18–21 December. *sites.google.com/view/icsds2023*

[C57] **2022 Beclin M.-F.**, Lafaye de Micheaux P., Molinari N., Using Quantile Regression to Predict and Quantify some Treatment's Response from Medical Images. *Artificial Intelligence and health: interdisciplinary approaches*, Nantes, France, 29 June – 1st July. *www.lebesgue.fr/en/conf_IA_sante2022*

[C56] **2022** Lafaye de Micheaux P., Mozharovskyi P., Navarro F., **Zhu H.**, R on Raspberry Pi, the "RaspberryPiR" package for collecting and analysing streaming sensor data. *UseR2022 conference*, fully online, 21–23 June. *user2022.r-project.org*

[C55] **2021 Cantwell R.**, Geenens G. and Lafaye de Micheaux P., Towards a Self-Contained Theory of Stochastics in the Complex Plane, *65th Annual Meeting of the Australian Mathematical Society*, Newcastle, Australia, 7–10 December. *austms.org.au/event/austms-2021*

[C54] **2019 Liquet B.**, Sutton M. and Lafaye de Micheaux P., PLS for Big Data: A Unified Parallel Algorithm for Regularized Group PLS, *UseR!2019*, Toulouse, France, 9–12 July. *www.user2019.fr*

[C53] **2019 Lafaye de Micheaux P.**, Mozharovskyi P., Vimond M., A notion of depth for curve data, *Statistical Society of Australia NSW Branch's September meeting*, Macquarie University, Sydney, Australia, 24 September. **Invited speaker**. *statsoc.org.au/event-3511476*

[C52] **2019 Lafaye de Micheaux P.**, Mozharovskyi P., Vimond M., Analyse de données polymorphiques: illustration avec la profondeur de courbes non-paramétrées en neuroimagerie, *Montpellier :Cradle of data science. Seminar in honor of Pr Yves Escoufier*, Montpellier University, Montpellier, France, 18–19 January. **Invited speaker**. *mtp-datascience.sciencesconf.org*

[C51] **2019 Lafaye de Micheaux P.**, Mozharovskyi P., Vimond M., A notion of depth for curve data, *ACEMS workshop on Statistical Methods for the Analysis of High-Dimensional and Massive Data set*, Queensland University of Technology, Brisbane, Australia, 25 January. **Invited speaker**. *acems.org.au/events/statistical-methods-analysis-high-dimensional-and-massive-data-set*

[C50] **2019 Liquet B.**, Sutton M., Lafaye de Micheaux P., Hejblum B. and Thiébaut R., Statistical Methods for the Analysis of High-Dimensional and Massive Data using R, *Australasian Applied Statistics Conference 2018*, Rotorua, New-Zeland, 3–7 December. *www.aasc.nz*

[1] I only list the invited conferences where I actually gave a talk.
[2] Speaker's name in boldface

[C49] **2018** Lafaye de Micheaux P., **Mozharovskyi P.**, Vimond M., A notion of depth for curve data, *11th International Conference of the ERCIM WG on Computational and Methodological Statistics*, University of Pisa, Italy, 14–16 December. *www.cmstatistics.org/CMStatistics2018*

[C48] **2018 Lafaye de Micheaux P.**, Mozharovskyi P., Vimond M., A notion of depth for curve data, *Australasian Applied Statistics Conference 2018*, Rotorua, New-Zeland, 3–7 December. *www.aasc.nz*

[C47] **2018 Lafaye de Micheaux P.**, Stoklosa J., Digital Uplift of Statistics Courses: What? Why? How?, *4th Mathematics Educational Software Special Interest Group meeting*, Sydney, Australia, 30 November. **Invited speaker**. *www.maths.unsw.edu.au/events/2018-11/mesig-meeting-2018*

[C46] **2018** Lafaye de Micheaux P., **Mozharovskyi P.**, Vimond M., A notion of depth for curve data, *Data Science, Statistics & Visualisation*, TU Wien, Austria, 9–11 July. *iasc-isi.org/dssv2018*

[C45] **2018 Geenens G.**, Lafaye de Micheaux P., The Hellinger Dependene Measure and its Functional Analogue, *The 5th Institute of Mathematical Statistics Asia Pacific Rim Meeting*, National University of Singapore, Singapore, 26–29 June.

[C44] **2018** Geenens G., **Lafaye de Micheaux P.**, Penev S., The Hellinger dependence measure, *Ninth International Workshop on Simulation*, Barcelona, Spain, 25–29 June. **Invited speaker**. *ssa.cf.ac.uk/iws2018*

[C43] **2017** Liquet B., **Lafaye de Micheaux P.**, Sutton M., A Unified Regularized Group PLS Algorithm Scalable to Big Data, *10th Conference of the IASC-ARS/68th Annual NZSA Conference*, Auckland, NZ, 10–14 December. **Invited speaker**. *www.nzsa2017.com*

[C42] **2017** Lafaye de Micheaux P., **Mozharovskyi P.** and Vimond M., A notion of depth for curve data, *49èmes Journées de Statistique*, Avignon, France, May 29 – June 2. *jds2017.sfds.asso.fr/?lang=en*

[C41] **2016 Liquet B.**, Lafaye de Micheaux P., Hejblum B. and Thiebaut R., Group and Sparse Group Partial Least Square Approaches Applied in Genomics Context, *Les cinquièmes Rencontres R*, Toulouse, France, June 22–24. *r2016-toulouse.sciencesconf.org*

[C40] **2016** Lafaye de Micheaux P., Liquet B. and **Riou J.**, Type-II generalized family-wise error rate formulas with application to sample size determination, *9th International Conference of the ERCIM (European Research Consortium for Informatics and Mathematics) Working Group on Computational and Methodological Statistics (CMStatistics 2016)*, Sevilla, Spain, December 9. *www.cmstatistics.org/CMStatistics2016*

[C39] **2016** Fan Y., **Lafaye de Micheaux P.**, Penev S. and Salopek D., Multivariate nonparametric test of independence, *Australian Statistical Conference*, Canberra, Australia, December 8. *www.statsoc.org.au/Past-Conferences*

[C38] **2016** Hejblum B., Lafaye de Micheaux P., **Liquet B.** and Thiebaut R., Statistical Methods For Analysing High-Dimensional Data and Massive Data, *The 2016 International Conference on Mathematics: Education, Theory & Application*, Sebelas Maret University (UNS), Solo, Indonesia, December 6–7. *semloknasagtfp.uns.ac.id/?schedConf=icmeta.*

[C37] **2016 Lafaye de Micheaux P.**, Liquet B. and Sutton M., A Unified Regularized Group PLS Algorithm Scalable to Big Data, *journées de STAtistique de Rennes (jSTAR), 13rd edition on ■Big Data■*, Rennes, France, October 20–21. **Invited speaker**. *jstar2016.sciencesconf.org*

[C36] **2016 Liquet B.**, Lafaye de Micheaux P., Hejblum B. and Thiébaut R., Group and Sparse Group Partial Least Square Approaches Applied in Genomics Context, *Use***R**, Stanford, USA, June 27–30. *r-project.org/conferences/useR-2016*

[C35] **2015** Fan Y., **Lafaye de Micheaux P.**, Penev S. and Salopek D., Multivariate nonparametric test of independence, *IMS-China International Conference on Statistics and Probability*, Kunming, China, July 3. *imstat.org/meetings-calendar/2015-ims-china-international-conference-on-statistics-and-probability*

[C34] **2014** Fan Y., **Lafaye de Micheaux P.**, Penev S. and Salopek D., Multivariate nonparametric test of independence, *The First International Conference on Big Data & Applied Stat*, Beijing, China, November 30. **Invited speaker**. *bdas.csp.escience.cn/*

[C33] **2014 Lafaye de Micheaux P.**, Liquet B., Perminder S., Anbupalam T. and Wei W., New Statistical tools to study heritabiliy of the brain, *Australian Statistical Conference in conjunction with the Institute of Mathematical Statistics Annual Meeting*, Sydney, Australia, July 10. **Invited speaker**. *maths.unsw.edu.au/events/2014-07/australian-statistical-conference*

[C32] **2013** Duchesne P., Lafaye de Micheaux P. and **Tagne Tatsinkou J.F.**, On Smooth Tests of Goodness-of-fit for Vector ARMA Time Series Models, *Joint Statistical Meeting*, Montréal, Canada, August 7. *www.amstat.org/meetings/jsm/2013*

[C31] **2013** Delorme, P., Lafaye de Micheaux P., Liquet, B. and **Riou, J.**, Type-II Generalized Family-Wise Error Rate Formulas with Application to Sample Size Determination, *8th International Conference on Multiple Comparison Procedures*, Southampton, England, July 11. *www.mcp-conference.org/2013*

[C30] **2013** Delorme, P., Lafaye de Micheaux P., Liquet, B. and **Riou, J.**, Package `SSDDA`: Sample Size Determination and Data Analysis in the context of continuous co-primary endpoints in clinical trials, *Deuxièmes rencontres* **R**, Lyon, France, June 27. *r2013-lyon.sciencesconf.org*

[C29] **2013 Lafaye de Micheaux P.** and Tran, V.A., The package `PoweR`: a reproducible research tool to facilitate the computation of power of some hypothesis tests, by means of Monte-Carlo simulations, *The International Conference on Statistics and its Interactions with Other Disciplines*, Ho Chi Minh, Viet Nam, June 7. **Invited speaker** and **Chairman of session "IS3"**. *siod.tdt.edu.vn/index.php/siod/2013*

[C28] **2013** Duchesne P., Lafaye de Micheaux P. and **Tagne Tatsinkou J.F.**, Test lisse d'ajustement pour les erreurs d'un modèle ARMA avec moyenne inconnue, *41th Annual Meeting of the Statistical Society of Canada*, Edmonton, Canada, May 28. *imstat.org/meetings-calendar/41st-annual-meeting-of-the-statistical-society-of-canada*

[C27] **2013** Delorme, P., Lafaye de Micheaux P., Liquet, B. and **Riou, J.**, Calcul de taille d'échantillon dans le cadre de critères de jugements multiples avec un contrôle de la r-power et du gFWER, *44èmes Journées de Statistique*, Toulouse, France, May 28. *jds2013.sfds.asso.fr*

[C26] **2012** Delorme P., Lafaye de Micheaux P., **Liquet. B.**, and Riou J., Power and sample size computation for a control of the "r-power", *NZSA 2012 Conference*, Dunedin, New Zeland, November 28. *www.maths.otago.ac.nz/nzsa2012/*

[C25] **2012 Lafaye de Micheaux P.**, Liquet. B., Marque S. and Riou J., Power and sample size determination in clinical trials with multiple primary continuous endpoints, *XXVIth International Biometric Conference*, Kobe, Japan, August 28. **Invited speaker**. *secretariat.ne.jp/ibc2012/*

[C24] **2012** Lafaye de Micheaux P., **Léger C.**, A Law of the Single Logarithm for Weighted Sums of Arrays Applied to Bootstrap Model Selection in Regression, *Joint Statistical Meetings*, San Diego, USA, July 30. *www.amstat.org/meetings/jsm/2012*

[C23] **2012 Lafaye de Micheaux P.**, Le logiciel **R** en neuro-imagerie fonctionnelle, *Premières rencontres* **R**, Bordeaux, France, July 3. **Invited Plenary Session**. *r2012.bordeaux.inria.fr* et *hal.archives-ouvertes.fr/hal-00717499*

[C22] **2012** Lafaye de Micheaux P., **Léger C.**, A Law of the Single Logarithm for Weighted Sums of Arrays Applied to Bootstrap Model Selection in Regression, *40^{th} Annual Meeting of the Statistical Society of Canada*, Guelph, Canada, June 5. *www.ssc.ca/en/meetings/2012*

[C21] **2012 Lafaye de Micheaux P.**, Lemaire V. Sample size determination and statistical hypothesis testing for core centration in press coated tablets, *Spring World Congress on Engineering and Technology (SCET)*, Xi'an, China, May 28. *www.engii.org/scet2012*

[C20] **2012** Ducharme G., Lafaye de Micheaux P. and **Marchina B.**, Méthodes d'approximation des éléments propres de noyaux de covariance, *43èmes Journées de Statistique*, Bruxelles, Belgique, May 25. *jds2012.ulb.ac.be*

[C19] **2012** Ducharme G., Lafaye de Micheaux P. and **Marchina B.**, Vecteurs aléatoires complexes et formes quadratiques hermitiennes, *43èmes Journées de Statistique*, Bruxelles, Belgique, May 22. *jds2012.ulb.ac.be*

[C18] **2010** Ducharme G., **Lafaye de Micheaux P.**, Marchina B., Tests d'ajustement basés sur la fonction caractéristique, *Colloque de statistique Sherbrooke-Montpellier*, Sherbrooke, Canada, October 6. **Invited speaker**. *www.usherbrooke.ca/sherbrooke-montpellier2010*

[C17] **2010 Tabelow K.**, Clayden J.D., Lafaye de Micheaux P., Polzehl J., Schmid V.J., Whitcher B., Image Analysis and Statistical Inference in Neuroimaging with R, *16th Annual Meeting of the Organization for Human Brain Mapping*, Barcelona, Spain, June 9-10. **Poster**. *www.humanbrainmapping.org/Barcelona2010*

[C16] **2010 Lafaye de Micheaux P.**, Liquet B., Le Package R ConvergenceConcepts: Un nouvel outil graphique pour l'étude de quelques modes de convergence de variables aléatoires, *42èmes Journées de Statistique*, Marseille, France, May 28. *jds2010.univmed.fr*

[C15] **2009 Lafaye de Micheaux P.**, The R-Package `ConvergenceConcepts`: A new graphical tool to investigate various modes of convergence, *International Conference on Frontiers of Interface Between Statistics and Sciences, Conference Proceedings*, Hyderabad, India, December 31. **Invited speaker**. www.stat.osu.edu/∼hnn/hydstatconf2010.html

[C14] **2009 Bordier C.**, Dojat M. and Lafaye de Micheaux P., `AnalyzeFMRI`: an R package to perform statistical analysis on fMRI, The useR! Conference, Rennes, France, July 9. *www.r-project.org/conferences/useR-2009*

[C13] **2009** Bordier C., Dojat M. and **Lafaye de Micheaux P.**, L'Analyse en Composantes Indépendantes Temporelle en Imagerie par Résonance Magnétique Fonctionnelle, 41ème Congrès de la SFDS, Bordeaux, France, May 28. *hal.inria.fr/inria-00386659*. And also **Chairman of session "Tests"**.

[C12] **2008 Desgagné A.**, Lafaye de Micheaux P., Leblanc A., Goodness-of-fit test of normality against GEP alternatives, 36^{th} Annual Meeting of the Statistical Society of Canada, Ottawa, Canada, May 28. *www.ssc.ca/archive/2008/index_e.html*

[C11] **2008 Bilodeau M.**, Lafaye de Micheaux P., A-dependence statistics for mutual and serial independence of categorical variables, 36^{th} Annual Meeting of the Statistical Society of Canada, Ottawa, Canada, May 28. *www.ssc.ca/archive/2008/index_f.html*

[C10] **2008 Lafaye de Micheaux P.**, Multi- and univariate Neyman smooth test of normality in a time series context, 36^{th} Annual Meeting of the Statistical Society of Canada, Ottawa, Canada, May 26. *www.ssc.ca/archive/2008/index_f.html*

[C9] **2008 Bilodeau M.**, Lafaye de Micheaux P., A-dependence statistics for mutual and serial independence of categorical variables, First conference of the Moroccan society of Applied Mathematics, École nationale de l'Industrie Minérale, Rabat, Morocco, February 7. **Invited speaker**. *www.enim.ac.ma/sm2a*

[C8] **2007 Desjardins S.**, Desgagné A., Lafaye de Micheaux P., Liquet B., Generalization of the Paired T-Test for the Missing Values Case, Joint Statistical Meetings, Salt Lake City, USA, July 31. **Poster**. *www.amstat.org/meetings/jsm/2007*

[C7] **2006** Beran R., Bilodeau M., **Lafaye de Micheaux P.**, Nonparametric tests of independence between random vectors, Swiss Statistics Meeting, Lugano, Switzerland, November 16. *www.statoo.com/gss06*

[C6] **2006** Beran R., **Bilodeau M.**, Lafaye de Micheaux P., Nonparametric tests of independence between random vectors, XVth Int. Symposium on Mathematical Methods Applied to the Sciences, San Jose, Costa Rica, February 23. *www.cimpa.ucr.ac.cr/simmac/2012/memorias/15_SIMMAC_2006.pdf*

[C5] **2005** Desgagné A., **Lafaye de Micheaux P.**, Leblanc A., Test de normalité contre des alternatives de type GEP, 37ème Congrès de la SFDS, Pau, France, June 10. *hal.archives-ouvertes.fr/hal-00299821*

[C4] **2004 Lafaye de Micheaux P.**, Léger C., Régression linéaire adaptative multiple: une approche bootstrap, 32th Annual Meeting of the Statistical Society of Canada, Montréal, Canada, May 31. *www.ssc.ca/archive/main/meetings/montreal_f.html*

[C3] **2004 Lafaye de Micheaux P.**, Léger C., Régression linéaire adaptative multiple: une approche bootstrap, 36ème Congrès de la SFDS, Montpellier, France, May 27. **Invited Plenary Session**. *hal.archives-ouvertes.fr/hal-00299872*

[C2] **2003** Bilodeau M., **Lafaye de Micheaux P.**, A multivariate empirical characteristic function test of independence with normal marginals, Swiss Statistics Meeting, Montreux, Switzerland, October 30. *www.statoo.com/jss03*

[C1] **2003** Desgagné A., Lafaye de Micheaux P., **Leblanc A.**, Test de normalité basé sur la famille des densités GEP, Journées de l'optimisation 2003, Montréal, Canada, May 7. *www.gerad.ca/jopt2003*

Colloquium (department wide talk)

2020 *Depth for Curve Data and Applications*, Department of Mathematics and Statistics Colloquium, Macquarie University, Sydney, May 1. https://www.mq.edu.au/about/about-the-university/faculties-and-departments/faculty-of-science-and-engineering/departments-and-centres/department-of-mathematics-and-statistics/news-and-events/Colloquium

Invited seminars in Australia

2023 *Depth for Curve Data and Applications*, Melbourne Business School seminar, Melbourne, April 13.

2021 *Depth for Curve Data and Applications*, Asia-Pacific Seminar in Probability and Statistics, Sydney, January 13.

2020 *Depth for Curve Data and Applications*, School of Mathematics and Statistics Seminar, UNSW Sydney, Sydney, April 17.

2020 *Depth for Curve Data and Applications*, ACEMS Maths Seminar, QUT, Brisbane, February 12.

2018 *Digital Uplift of Statistics Courses: What? Why? How?*, Teaching Seminar, School of Mathematics and Statistics, UNSW Sydney, October 25.

2015 *Nonparametric tests between random vectors based on the characteristic function*, Business School, UNSW Sydney, July 17.

2014 *Nonparametric tests between random vectors based on the characteristic function*, School of Mathematics and Statistics, UNSW Sydney, June 13.

Invited seminars in Canada

2015 *Corrélation, dépendance, causalité. En route vers la troisième dimension, et au-delà*, Club Mathématique, Université de Montréal, April 8.

2013 *Sample size and power determination to decide veracity of at least r among m hypotheses*, Statistics Seminar, Manitoba University, January 17.

2012 *Sample size and power determination to decide veracity of at least r among m hypotheses*, McGill Statistics Seminar, McGill University, december 7.

2010 *Méthodes statistiques multivariées et exploration cérébrale*, Club Mathématique, Université de Montréal, March 24.

2010 *Goodness-of-fit tests in ARMA and VARMA models, with a comparison against the Jarque-Bera test*, CRM-ISM-GERAD Statistics Colloquium, Montréal, January 29.

2010 *Goodness-of-fit tests in ARMA and VARMA models, with a comparison against the Jarque-Bera test*, Département de mathématiques et de statistique de l'Université Laval, Québec, January 28.

2009, *Tests lisses de non normalité dans un contexte de séries chronologiques*, Université de Montréal, January 29.

Invited seminar in China

2012 *Goodness-of-fit tests in ARMA and VARMA models, with a comparison against the Jarque-Bera test*, Departement of Statistics, Yunnan University, Kunming, June 8.

Invited seminars in France

2021 *Depth for Curve Data and Applications*, Laboratoire de Mathématiques de Bretagne Atlantique Stats Seminar, Université Bretagne Sud, Vannes, December 3.

2020 *Depth for Curve Data and Applications*, Grenoble Stats Seminar, Grenoble Alps University (LJK), Grenoble, March 26.

2020 *A notion of Depth for Curve Data*, Séminaire de Probabilités et Statistique Laboratoire J.A. Dieudonné, Université Côte d'Azur, Nice, February 4.

2016 *Nonparametric Tests of Dependence using the Empirical Characteristic Function*, Séminaire de Statistique, ENSAI Rennes, April, 21.

2015 *Nonparametric Tests of Dependence using the Empirical Characteristic Function*, Séminaire de Statistique, ENSAI Rennes, June, 17.

2009 *Tests lisses de non normalité dans un contexte de séries chronologiques*, Séminaire de Statistique, LJK Grenoble, March, 12.

2008 *Independent Component Analysis: a complement to SPM*, Séminaire NICOSIA, Grenoble, February, 5.

2007 *Smooth test of normality in a time series context*, Séminaire Équipe SAGAG, Grenoble, November, 22.

2007 *Multivariate Statistical Methods in FMRI*, Grenoble Neuroscience Institute, Grenoble, November, 12.

2006 *Nonparametric tests of independence between random vectors*, Inauguration Day for the Laboratory Jean Kuntzmann, Grenoble, September, 28.

2003 *A multivariate empirical characteristic function test of independence with normal marginals*, Séminaire de Statistique du Laboratoire de Statistique et Probabilités de l'Université Paul Sabatier de Toulouse, February, 24.

2003 *A multivariate empirical characteristic function test of independence with normal marginals*, Séminaire de Statistique et Modelisation Stochastique de l'Université Joseph Fourier de Grenoble, February, 20.

2003 *A multivariate empirical characteristic function test of independence with normal marginals*, Séminaire ENSAM/INRA/UM II de l'Université Montpellier II, February, 17.

Invited seminar in India

2010 *Goodness-of-fit tests in ARMA and VARMA models, with a comparison against the Jarque-Bera test*, Indian Statistical Institute of Bangalore, January 4.

Graduate students seminar of Université de Montréal

2003 *A multivariate empirical characteristic function test of independence with normal marginals*, February, 12.

2002 *Tests d'indépendance en analyse mulivariée et tests de normalité dans les modèles ARMA*, November, 27.

2002 *Goodness-of-fit tests of normality for the innovations in ARMA models*, May, 8.

2002 *Test de multinormalité basé sur la théorie des processus stochastiques*, February, 6. Launching of the seminar.

Short courses and tutorials

2014 *Short course*, Bases of the **R** software, UNSW Sydney, Australia, May 6 to July 1 2014.

2014 *Short course*, Bases of the **R** software, University of Sebelas Maret, Indonesia, May 19–24 2014.

2010 Tutorial given at the use**R**! 2010 conference, with Whitcher B., Buchsbaum B. and Polzehl J., entitled *Medical image analysis for structural and functional MRI*, Gaithersburg, Maryland, USA, July 20 2010.

2010 Lecture that I gave to graduate students at our department, entitled *Computing simulations at DMS for statisticians*, with **R**, C/C++, Fortran77, cluster, GPU, May 17 2010.

2008 Short course on **R**/C interface and **R** packages development. Lecture that I gave at Université Catholique de Louvain La Neuve, Belgium, April 3–4 2008.

Workshops

[**W1**] **2019** *Advanced R skills: Introduction to Shiny and Building R Packages*, September 23–24, Macquarie University, Sydney, Australia. **Invited speaker** (with J. Wishart). *statsoc.org.au/event-3541928*

[**W2**] **2019** *2-day Statistical Methods for the Analysis of High-Dimensional and Massive Data set*, January 24–25, Queensland University of Technology (QUT), Brisbane, Australia. **Invited speaker** (with B. Liquet). *acems.org.au/events/statistical-methods-analysis-high-dimensional-and-massive-data-set*

[**W3**] **2015** Attendee, *New Algorithms for Complex Data*, March 19–20, Santa Ana Pueblo, New Mexico (USA). *www.cvent.com/events/new-algorithms-for-complex-data/event-summary-be4efba6efcc467cbfe981970c8364b1.aspx*

[**W4**] **2013** Temporal and Spatial Independent Component Analysis for fMRI Data Sets: the AnalyzeFMRI **R** Package, *Statistical Image Analysis*, March 7, Santa Fe (USA). **Invited speaker.** *www.cvent.com/events/statistical-image-analysis/event-summary-146aced31b0743bebfc607ba6300b020.aspx*

[**W5**] **2009** Attendee, *Dictionary of Atoms: New Trends in Advanced Signal Processing in Functional Brain Imaging*, September 14–19, Montreal (Canada). *http://www.crm.umontreal.ca/Atoms09/index.php*

Research visits to another institution

2020/02 Mathematical Sciences, Queensland University of Technology, invited by Pr. B. Liquet (1 week).

2017/07 Institut Montpelliérain Alexander Grothendieck, Université de Montpellier, invited by Pr. G. Ducharme (1 week).

2015/07 School of Psychiatry (Centre for Healthy Brain Ageing), UNSW Sydney (Australia), invited by Pr. W. Wen (2 weeks).

2015/06 Department of Statistics, Yunnan University (Kunming, China), invited by Pr. N. Tang (3 weeks).

2014/05 Department of Mathematics, Universitas Sebelas Maret (Solo, Indonesia), invited by Pr. S. Sastraredja (1 week).

2013/12 School of Mathematics and Physics, The University of Queensland, invited by Pr. B. Liquet (1 week).

2012/07 Medical Research Center, Biostatistics Unit, Cambridge University, invited by Pr. B. Liquet (1 week).

2010/06 Grenoble Institute of Neuroscience, invited by Dr. M. Dojat (1 week).

2010/06 Institut de Mathématiques et de Modélisation, Université Montpellier II, invited by Pr. G. Ducharme (3 weeks).

2009/06 Institut de Mathématiques et de Modélisation, Université Montpellier II, invited by Pr. G. Ducharme (1 week).

2008/06 Centre de Recherches Mathématiques of Université de Montréal, invited by Pr. C. Léger (1 week).

2008/06 Université du Québec à Montréal, invited by Pr. A. Desgagné (1 week).

2006/02 Centre de Recherches Mathématiques of Université de Montréal, invited by Pr. C. Léger (1 week).

2005/01 Departement of Mathematics and Statistics, Université de Montréal, invited by Pr. M. Bilodeau (1 week).

2004/06 Centre de Recherches Mathématiques of Université de Montréal, invited by Pr. C. Léger (3 weeks).

Hosting of visiting scholars

2019 (02–21 Dec.) Simos Meintanis (Professor of Statistics and Econometrics, National and Kapodistrian University of Athens, Greece). Three weeks of research.

2016 (14–26 Febr.) Christian Léger (Professor of Statistics, University of Montreal, Canada). Two weeks of research.

2015 (Nov.–Dec.) Spiridon Penev (Associate Professor of Statistics, UNSW Sydney, Australia). Two months of research.

2013 (21–28 June) Ali Gannoun (Professor of Statistics, Université de Montpellier 2, France). One week of research.

2013 (21–28 June) Xavier Bry (Associate Professor of Statistics, Université de Montpellier 2, France). One week of research.

2007 (29 Nov.) Olivier Renaud (Professor of Statistics, Université de Genève, Switzerland). Séminaire LJK: *Tests simultanés dans le plan temps-fréquence: le cas de signaux d'électro-encéphalogrammes dans la recherche en psychologie.*

2006 (22–29 July) Alain Desgagné (Professor of Statistics, Université du Québec à Montréal, Canada). One week of research in Les Cévennes (south of France).

2006 (27 April) François Perron (Professor of Statistics, Université de Montréal, Canada). SMS Seminar: *Estimer une fonction de répartition par une perturbation de la fonction de répartition échantillonnale.*

2005 (23–25 Febr.) Keith Worsley (Professor of Statistics, Department of Statistics, Mc Gill University, Canada). SMS Seminar: *The geometry of random imaging in astrophysics and brain mapping.* Contact with Neuroimaging researchers in Grenoble.

2004 (11 March) François Perron (Professor of Statistics, Université de Montréal, Canada). SMS Seminar: *Sur l'étape de rééchantillonnage dans les algorithmes PMC (Population Monte Carlo).*

GRANTS AND DISTINCTIONS

Grants and scholarships

2023	-	UNSW Sydney's UNSW Research Infrastructure Scheme Grant, "Building quality **R** software infrastructure". With D. Falster, S. Nakagawa, W. Cornwell, J. Richmond, J. Lee, L. Williams, C. Foster, F. Vafaee, S. Sisson, F. Kar, D. Warton, M. Lyons, G. Abramowitz, and S. Laffan. (2023–2024)	$304,183
	-	UNSW Sydney's Faculty Research Grant, "Discrete copula modelling; or how to pour new wine into old bottles" (with G. Geenens).	$7,500
2022	-	UNSW Sydney's Faculty Research Grant, "Discrete copula modelling; or how to pour new wine into old bottles" (with G. Geenens).	$12,000
2021	-	ACEMS Industry Collaboration Support Scheme grant, "Ensuring Tutoring Quality via Automated Evaluation Systems" (with S. Sisson and M. Bertuol).	$25,000
2021	-	UNSW Sydney's Faculty Research Grant, "Spectral methods in machine learning using polymorphic data" (with S. Penev).	$5,000
2020	-	UNSW Sydney's Faculty Research Grant, "Spectral methods in machine learning" (with S. Penev).	$10,000
	-	UNSW Sydney's UNSW Research Infrastructure Scheme Grant, "Building quality software packages in **R**". With D. Falster, S. Nakagawa, W. Cornwell, D. Navarro, J. Richmond, D. Warton, M. Lyons, G. Abramowitz, A. Ukkola, M. De Kauwe and S. Laffan.	$235,453
2019	-	UNSW Business School Silver Star, "Complex Dependence Modelling to Unravel Relatonships in Big Data" (with B. Avanzi, G. Geenens and S. Penev).	$10,000
	-	UNSW Sydney's Faculty Research Grant, "Novel statistical methods for the analysis of high-dimensional data".	$5,000
	-	UNSW Sydney's Faculty Research Grant, "Complex dependence modelling to unravel relationships in Neuroimaging" (with S. Penev).	$9,000
2017	-	Starting grant from UNSW Sydney.	$10,000
2014	-	NSERC individual competition discovery grant program (2014-2019).	$70,000
2013	-	Mitacs Accelerate Research Internships Program.	$30,000
2013	-	NSERC Research Tools and Instruments Grants Program (principal investigator, with 7 others).	$28,143
2010	-	NSERC individual competition discovery grant program (2010-2015).	$60,000

2009	-	Starting grant from Université de Montréal.	$15,000
2008	-	Bonus Qualité Recherche from Institut National Polytechnique de Grenoble and Ph.D. funding for the MoDyC (Modelisation of Dynamical Brain Activity) project. With S. Achard, J.-F. Coeurjolly, B. Rivet and M. Sato.	€122,880
2005	-	Travel grant awarded by le Centre Jacques Cartier.	€600
2003	-	Post-doctoral scholarship from Pr. Christian Léger.	$18,000
	-	Post-doctoral scholarship from the National Science and Engineering Research Council (NSERC) of Canada (awarded to 8 candidates in Statistics).	$80,000
2002	-	Excellence scholarship from the Department of Mathematics and Statistics, and the Graduate Studies Faculty at Montreal University.	$1,500
	-	Institut des sciences mathématiques's (ISM) scholarship.	$12,000
2001	-	Montreal University Ph.D. scholarship.	$3,850
	-	Excellence scholarship from the Department of Mathematics and Statistics, and the Graduate Studies Faculty at Montreal University.	$3,000
	-	Scholarship from Pr. Gilles Ducharme.	$9,350
2000	-	Scholarship from Pr. Martin Bilodeau.	$18,400
	-	Québec ministry of education's scholarship.	$2,500
1997	-	Masters of Science's scholarship based on academic skills.	FF21,546

Academic distinction

Université de Montréal Faculty of Advanced Studies *Provost Honor List (2003)*.

RESEARCH OUTPUT

Journal articles	Books	Chapters in Books	Technical reports	**R** packages	Papers submitted
46	3+3	2	16	24	15

Articles in international refereed journals (Total: 46)

Google Scholar: h-index=23, i10-index=34 ; citations=1,580 (https://scholar.google.ca/citations?user=k8FhYaUAAAAJ&hl=en&oi=ao)
ResearchGate: RG Score=32.87[3] ; citations=1,230 ; Research Interest=888.9 ; h-index=20 ; Reads=58,961 (https://researchgate.net/profile/Pierre_Lafaye_De_Micheaux2)
Scopus citations: 694 ; h-index=15 (scopus.com/authid/detail.uri?authorId=21834460700)
ORCID: orcid.org/0000-0002-0247-5136
arXiv: https://arxiv.org/a/lafayedemicheaux_p_1.html

Note: see page 23 for a list of $n = 15$ papers currently submitted (and their revision stage).

• *Statistics and Probability Journals (strict alphabetical order of authors, a usual practice in our field [Link][4]).*

[J46] **2024** García Portugués E., Lafaye de Micheaux P., Meintanis S., Verdebout T., Nonparametric tests of independence for circular data based on trigonometric moments, *Statistica Sinica*, 34. pp. 567–588.

[J45] **2023** Desgagné A., Lafaye de Micheaux P. and Ouimet F., Goodness-of-Fit Tests for Laplace, Gaussian and Exponential Power Distributions Based on λ-th Power Skewness and Kurtosis, *Statistics*, 57(1), pp. 94–122.

[J44] **2022** Desgagné A., Lafaye de Micheaux P. and Ouimet F., A comprehensive empirical power comparison of univariate goodness-of-fit tests for the Laplace distribution, *Journal of Statistical Computation and Simulation*, 92(18), pp. 3743–3788.

[J43] **2022** Geenens G. and Lafaye de Micheaux P., The Hellinger correlation, *Journal of the American Statistical Association*, 117(538), pp. 639–653.

[J42] **2022** Henze N., Lafaye de Micheaux P., Meintanis S., Tests for Circular Symmetry of Complex-Valued Random Vectors, *TEST*, 31, pp. 488–518.

[J41] **2021** Lafaye de Micheaux P., Mozharovskyi P. and Vimond M., Depth for curves data and applications, *Journal of the American Statistical Association*, 116(536), pp. 1881–1897.

[J40] **2021** Boglioni-Beaulieu G., Lafaye de Micheaux P., Ouimet F. Counterexamples to the classical central limit theorem for triplewise independent random variables having a common arbitrary margin, *Dependence Modelling*, 9, pp. 424–438.

[J39] **2021** Lafaye de Micheaux P., Ouimet F. A study of seven asymmetric kernels for the estimation of cumulative distribution functions, *Mathematics*. 9(20), # 2605.

[J38] **2021** Avanzi B., Boglioni Beaulieu G., Lafaye de Micheaux P., Wong B. A counterexample to the existence of a general central limit theorem for pairwise independent identically distributed random variables, *Journal of Mathematical Analysis and Applications*, 499(1), pp. 1–12, # 124982, July

[J37] **2020** Duchesne P., Lafaye de Micheaux P. and Tagne Tatsinkou J. F., On strong consistency and asymptotic normality of one-step Gauss-Newton estimators in ARMA time series models, *Statistics, A Journal of Theoretical and Applied Statistics*, 54(5), pp. 1030–1057, November.

[3] Score not used anymore.
[4] ams.org/profession/leaders/culture/CultureStatement04.pdf

[**J36**] **2020** Ducharme G. and Lafaye de Micheaux P., A Goodness-of-Fit test for Elliptical Distributions with Diagnostic Capabilities, *Journal of Multivariate Analysis*, 178, pp. 104602 , July.

[**J35**] **2019** Lafaye de Micheaux P., Liquet B., Sutton M., PLS for Big Data: A Unified Parallel Algorithm for Regularized Group PLS, *Statistics Surveys*, 13, pp. 119–149, September.

[**J34**] **2018** Desgagné A., Lafaye de Micheaux P., A Powerful and Interpretable Alternative to the Jarque-Bera Test of Normality Based on 2nd-power Skewness and Kurtosis, *Journal of Applied Statistics*, 45(13), pp. 2307–2327, August.

[**J33**] **2018** Lafaye de Micheaux P., Ouimet F., A uniform L^1 law of large numbers for functions of i.i.d. random variables that are translated by a convergent estimator, *Statistics & Probability Letters*, 142, pp. 109–117, June.

[**J32**] **2017** Fan Y., Lafaye de Micheaux P., Penev S., Salopek D., Multivariate Nonparametric Test of Independence, *Journal of Multivariate Analysis*, 153, pp. 189–210, January. (**Most Cited Article** for this journal in 2020[5])

[**J31**] **2016** Duchesne P., Lafaye de Micheaux P., Tagne. J., Estimating the Mean and its Effects on Neyman Smooth Tests of Normality for ARMA Models, *Canadian Journal of Statistics*, 44(3), pp. 241–270, September.

[**J30**] **2016** Delorme P., Lafaye de Micheaux P., Liquet B. and Riou J., Type II generalized Family-Wise Error Rate Formulas with Application to Sample Size Determination, *Statistics in Medicine*, 35(16), pp. 2687–2714, July.

[**J29**] **2016** Lafaye de Micheaux P., Tran V.A., Powe**R**: a Reproducible Research Tool to ease Monte-Carlo Power Simulation Studies for Goodness-of-fit Tests in **R**, *Journal of Statistical Software*, 69(3), pp. 1–44, February.

[**J28**] **2016** Ducharme G., Lafaye de Micheaux P. and Marchina B., The Complex Multinormal Distribution, Quadratic Forms in Complex Random Vectors and a Goodness-of-fit test for the Complex Multinormal Distribution, *Annals of the Institute of Statistical Mathematics*, 68(1), pp. 77–104, February.

[**J27**] **2015** Bilodeau M., Lafaye de Micheaux P. and Mahdi S., The **R** Package groc for Generalized Regression on Orthogonal Components, *Journal of Statistical Software*, 65(1), pp. 1–29, May.

[**J26**] **2014** Lafaye de Micheaux P., Liquet B., Marque S. and Riou J. Power and sample size determination in clinical trials with multiple primary continuous correlated endpoints, *Journal of Biopharmaceutical Statistics*, 24(2), pp. 378–397, February.

[**J25**] **2013** Duchesne P. and Lafaye de Micheaux P., Distributions for residual autocovariances in parsimonious periodic vector autoregressive models with applications. *Journal of Time Series Analysis*, 34(4), pp. 496–507, July.

[**J24**] **2013** Desgagné A., Lafaye de Micheaux P. and Leblanc A., Test of normality against generalized exponential power alternatives, *Communications in Statistics, Theory and Methods*, 42(1), pp. 164–190, January.

[**J23**] **2012** Lafaye de Micheaux P. and Lemaire V., Sample size determination and statistical hypothesis testing for core centration in press coated tablets, *Open Journal of Statistics*, 2(3), pp. 269–273, July.

[**J22**] **2012** Lafaye de Micheaux P. and Léger C. A law of the single logarithm for weighted sums of arrays applied to bootstrap model selection in regression. *Statistics and Probability Letters*, 82(5), pp. 965–971, May.

[5] journals.elsevier.com/journal-of-multivariate-analysis/most-cited-articles

[J21] **2011** Bordier C., Dojat, M. and Lafaye de Micheaux P., Temporal and Spatial Independent Component Analysis for fMRI Data Sets Embedded in the AnalyzeFMRI **R** package, *Journal of Statistical Software*, Special Volume: Magnetic Resonance Imaging in **R**, 44(9), October.

[J20] **2010** Duchesne P. and Lafaye de Micheaux P., Computing the distribution of quadratic forms: Further comparisons between the Liu-Tan-Zhang approximation and exact methods. *Computational Statistics and Data Analysis*, 54(4), pp. 858–862, April. (**Highly Cited Paper**[6])

[J19] **2009** Coeurjolly J.F., Drouilhet R., Lafaye de Micheaux P. and Robineau J.F., `asympTest`: A simple **R** package for classical parametric statistical tests and confidence intervals in large samples. *The* **R** *Journal*, 1(2), pp. 26–30, December.

[J18] **2009** Lafaye de Micheaux P., Liquet B., `ConvergenceConcepts`: an **R** package to investigate various modes of convergence. *The* **R** *Journal*, 1(2), pp. 18–25, December.

[J17] **2009** Bilodeau M. and Lafaye de Micheaux P., A-dependence statistics for mutual and serial independence of categorical variables. *Journal of Statistical Planning and Inference*, 139(7), pp. 2407–2419, July 1.

[J16] **2009** Lafaye de Micheaux P. and Liquet B., Understanding Convergence Concepts: A Visual-Minded and Graphical Simulation Based Approach. *The American Statistician*, 63(2), pp. 173–178, May.

[J15] **2007** Beran R., Bilodeau M. and Lafaye de Micheaux P., Nonparametric tests of independence between random vectors. *Journal of Multivariate Analysis*, 98(9), pp. 1805–1824, October.

[J14] **2005** Bilodeau M. and Lafaye de Micheaux P., A multivariate empirical characteristic function test of independence with normal marginals. *Journal of Multivariate Analysis*, 95(2), pp. 345–369, August.

[J13] **2004** Ducharme G.R. and Lafaye de Micheaux P., Goodness-of-fit tests of normality for the innovations in ARMA models. *Journal of Time Series Analysis*, 25(3), pp. 373–395, May.

• *Neuroscience Journals (alphabetical order of authors, or order by importance of contribution).*

[J12] **2023** Achard S., Coeurjolly, J.-F., Lafaye de Micheaux P., Lbath H., Richiardi J. Inter-regional correlation estimators for functional magnetic resonance imaging, *Neuroimage*, 282, p. 120388

[J11] **2016** Wen W., Thalamuthu A., Mather K., Zhu W., Jiang J., Lafaye de Micheaux P., Wright M., Ames D., Sachdev P., Distinct Genetic Influences on Cortical and Subcortical Brain Structures, *Scientific Reports (Nature Publishing Group)*, 6(32760), pp. 1–11.

[J10] **2013** Nicoli F., Lafaye de Micheaux P. and Girard N., Perfusion-Weighted Imaging-Derived Collateral Flow Index is a Predictor of MCA M1 Recanalization After IV Thrombolysis, *American Journal of Neuroradiology*, 34(1), p. 107-114, January.

[J9] **2011** Tabelow K., Clayden J.D., Lafaye de Micheaux P., Polzehl J., Schmid V.J., Whitcher B., Image Analysis and Statistical Inference in Neuroimaging with **R**. *NeuroImage*, 55(4), pp. 1686–1693, April 15.

[J8] **2008** Cenier T., Amat C., Litaudon P., Garcia S., Lafaye de Micheaux P., Liquet B., Roux S. and Buonviso N., Odor vapor pressure and quality modulate local field potential oscillatory patterns in the olfactory bulb of the anesthetized rat. *European Journal of Neuroscience*, 27(6), pp. 1432–1440, March.

[6] Highly cited papers reflect the top 1% of papers by field and publication year.

[J7] **2007** Dubois M., Lafaye de Micheaux P., Noël M.P. and Valdois S., Pre-orthographical constraints on visual word recognition : Evidence from a case study of developmental surface dyslexia. *Cognitive Neuropsychology*, 24(6), pp. 623–660, September.

- *Other Journals (order of authors following rules in the field).*

[J6] **2023** Lodi A., Poterie A., Exarchakis G, Brien C., Lafaye De Micheaux P., Deruelle P., Gallix B., Prediction of cesarean delivery in class III obese nulliparous women: An externally validated model using machine learning, *Journal of Gynecology Obstetrics and Human Reproduction*, 52(7), pp. 102624.

[J5] **2021** Leightner J., Inoue T. and Lafaye de Micheaux P., Variable Slope Forecasting Methods and Covid-19 Risk, *Journal of Risk and Financial Management* (Section Economics and Finance), 14(10), pp. 1–22, October.

[J4] **2017** Bure L., Boucher L.-M., Blumenkrantz M., Schob S., Lafaye de Micheaux P., Reinhold C. and Gallix B., Can magnetic resonance spectroscopy differentiate malignant and benign causes of lymphadenopathy? An *in-vitro* approach, *PLoS ONE*, 12(8): e0182169.

[J3] **2016** Liquet B., Lafaye de Micheaux P., Hejblum B., Thiebaut R., Group and Sparse Group Partial Least Square Approaches Applied in Genomics Context, *Bioinformatics*, 32(1), pp. 35–42, January.

[J2] **2014** Haddadi M., Lemdani M., Gainier M., Hubert H., Tagne J. and Lafaye de Micheaux P., Comparing the APACHE II, SOFA, LOD and SAPS II scores in patients who have developed a nosocomial infection, *Bangladesh Critical Care Journal*, 2(1), pp. 4–9, March.

[J1] **2013** Marteau P., Guyonnet D., Lafaye de Micheaux P. and Gelu, S. A randomized, double-blind, controlled study and pooled analysis of two identical trials of fermented milk containing probiotic Bifidobacterium lactis CNCM I-2494 in healthy women reporting minor digestive symptoms, *Neurogastroenterology and Motility*, 25(4), p. 331-e252, April.

Books

[B3] **2021** Avanzi Benjamin, Lafaye de Micheaux Pierre, Yang Xinda, Wong Johny, Xian Alan, Boglioni-Beaulieu Guillaume, Arkington Owen, Communicate Data with R, https://communicate-data-with-r.netlify.app/.

[B2] **2013** Lafaye de Micheaux Pierre, Drouilhet Rémy, Liquet Benoit, The **R** software. Fundamentals of Programming and Statistical Analysis, *Springer - Collection: Statistics and Computing, vol. 40*, 655 p., November, ISBN: 978-1-4614-9019-7.

[B1] **2011** Lafaye de Micheaux Pierre, Drouilhet Rémy, Liquet Benoit, Le logiciel **R**, Maîtriser le langage - Effectuer des analyses statistiques, *Springer - Collection: Statistique et probabilités appliquées, Vol. 1*, 1st Edition., XVI, 527 p., June, Broché, ISBN: 978-2-8178-0114-8. (in French) **Nominated for the Roberval Prize.** (New publisher: John Libbey Eurotext http://www.jle.com/)

The book [B2] was translated into the following languages:

[b3] **2016** Lafaye de Micheaux Pierre, Drouilhet Rémy, Liquet Benoit, Perangkat Lunak **R** - Dasar-dasar Pemrograman dan Analisis Statistika, *Penerbitan dan Pencetakan UNS (UNS Press)*, 677 p. (in Indonesian).

[b2] **2015** Lafaye de Micheaux Pierre, Drouilhet Rémy, Liquet Benoit, Pan Dongdong, Tang Niansheng, Li Qizhai, **R**: 软件教程——从入门到精通统计分析 (**R**: the textbook - Master the language & Perform statistical analyses), *Higher Education Press* (largest textbook publisher in China) (in Chinese).

[b1] **2014** Lafaye de Micheaux Pierre, Drouilhet Rémy, Liquet Benoit, Le logiciel **R**, Maîtriser le langage - Effectuer des analyses (bio)statistiques, *Springer - Collection: Statistique et probabilités appliquées, Vol. 1*, 2nd Edition., 674 p., October, Broché, ISBN: 978-2-8178-0534-4. (in French) (Addition of 174 pages to [B1])

Sections or chapters in an authored or edited book

[EB2] Bi Z., Lafaye de Micheaux P., Online Time Series Analysis, In *International Encyclopedia of Statistical Science, Ed 2* (ed. Miodrag Lovric), (2024) Springer-Verlag, New York, pp. .

[EB1] Geenens G., Lafaye de Micheaux P., The Hellinger Correlation, In *Wiley StatsRef: Statistics Reference Online* (eds N. Balakrishnan, T. Colton, B. Everitt, W. Piegorsch, F. Ruggeri and J.L. Teugels), (2024) John Wiley & Sons, Ltd, pp.1–5.

Conference papers

[CP1] Lafaye de Micheaux P., Meintanis S., Verdebout T., Tests for Independence Involving Spherical Data, In *Nonparametric Statistics (4th ISNPS, Salerno, Italy, June 2018)* (Eds. M. La Rocca et al.), (2020) Chap. 27 (339), 978-3-030-57306-5.

Papers submitted to international refereed journals

[S1] Béclin, M.-F., Lafaye de Micheaux P., Molinari N., Ouimet F. (December 2024). A linear regression model for quantile function data applied to paired pulmonary 3d CT scans, *Annals of Applied Statistics*, 36 pages.

Packages and software

Leader of the statistical and data analysis software **R**, I was ranked in January 2020 in the top 1% in the world (1st in Australia and France) for the number of **R** packages developed (15) and for which I was the **maintainer** on the CRAN (13).

Development of 15 R packages (and their associated publications):
depsy.org/person/433297; depsy.org/person/434618; depsy.org/person/440584; depsy.org/person/433470

[P15] `curveDepth` (with Mozharovskyi, P. and Vimond, M.), **[J39]** Provides functionalities for reading curves, sampling points on curves, calculating distance between curves and for computing Tukey curve depth of a curve w.r.t. to a bundle of curves. *cran.r-project.org/package=curveDepth*

[P14] `AnalyzeFMRI` (initiated by Marchini, J.), **[J21]**. Functions for I/O FMRI data in various formats and for treating brain images with ICA methods. Visualization. *cran.r-project.org/package=AnalyzeFMRI*

[P13] `ConvergenceConcepts` (with Liquet, B.), **[J18]** and **[J16]**. Check and visualize convergence of a sequence of random variables in law, in probability, in r-th mean and almost surely.
cran.r-project.org/package=ConvergenceConcepts

[P12] `asympTest` (with Coeurjolly J.F., Drouilhet R. and Robineau J.F), **[J19]**. One and two samples parametric tests based on an asymptotic approach. *cran.r-project.org/package=asympTest*

[P11] `CompQuadForm` (with Duchesne P.), **[J20]**. Distribution function of quadratic forms of Gaussian random variables. *cran.r-project.org/package=CompQuadForm*

[P10] `IndependenceTests` (with Bilodeau M.), **[J15]** and **[J17]**. (Mutual and serial) Non-parametric independence tests between random vectors and for categorical data. *cran.r-project.org/package=IndependenceTests*

[P9] `groc` (with Bilodeau M.), **[J27]**. Generalized regression on orthogonal components. *cran.r-project.org/package=groc*

[P8] `rPowerSampleSize` (with Delorme P., Liquet B. and Riou J.), **[J26]**, **[J30]**. Computing power and sample size for procedures controlling gFWER. *cran.r-project.org/package=rPowerSampleSize*

[**P7**] `PoweR` (with Tran V.A.), [**J29**]. Production of power and level tables for GOF tests. *cran.r-project.org/package=PoweR*

[**P6**] `sgPLS` (with Liquet, B.), [**J3**]. Sparse Group Partial Least Square regression models. *cran.r-project.org/package=sgPLS*

[**P5**] `nortestARMA` (with Duchesne P.), [**J31**]. Estimating the mean and its effects on Neyman smooth tests of normality for ARMA models. *cran.r-project.org/package=nortestARMA*

[**P4**] `LeLogicielR` (with Drouilhet R. and Liquet B.), [**B1**], [**B1**], LeLogicielR: Functions and datasets to accompany the book "Le logiciel R: Maitriser le langage, Effectuer des analyses statistiques" (French) *cran.r-project.org/package=LeLogicielR*

[**P3**] `TRSbook` (with Drouilhet R. and Liquet B.), [**B2**], TRSbook: Functions and Datasets to Accompany the Book "The R Software: Fundamentals of Programming and Statistical Analysis" *cran.r-project.org/package=TRSbook*

[**P2**] `ECGofTestDx` (with Ducharme G.), [**J36**], ECGofTestDx: A Goodness-of-Fit Test for Elliptical Distributions with Diagnostic Capabilities *cran.r-project.org/package=ECGofTestDx*

[**P1**] `HellCor` (with Geenens G.), [**J43**], HellCor: The Hellinger Correlation *cran.r-project.org/package=HellCor*

Python:

- Co-author of the implementation of the FastICA algorithm in the scikit-learn.org *Machine Learning* library (2008). `https://github.com/scikit-learn/scikit-learn/blob/b194674c4/sklearn/decomposition/_fastica.py` Coded during the first SciPy for NiPy (Neuroimaging in Python, nipy.org) coding sprint, Paris, (2008).

Linux:

- Co-author of the **article** (in French) entitled "Setting up an incremental backup server", published in *Linux Pratique* magazine, LP32 nov.-dec., (2005). biostatisticien.eu/textes/serveur-backup.pdf

Computing experience:

- Programming languages and Analytics/Mathematics/Statistics software: Assembly, C, C++, Excel, Fortran 77, Javascript, LaTeX, Mathematica, Matlab, Python, R/Splus, SPSS, SAS, SQL, Tableau, Visual Basic.
- Network administration with Linux since 1998.
  Implementation and management of a backup system for all the members of my Statistics Department in 2005.
- Casual user of the following Operating Systems: Windows 95/98/XP/7/10.

Technical reports and theses

[**R24**] Béclin, M.-F., Lafaye de Micheaux P., Molinari N., Ouimet F. (December 2024). A linear regression model for quantile function data applied to paired pulmonary 3d CT scans, arXiv 2412.15049, 36 pages.

[**R23**] García-Portugués E., Lafaye de Micheaux P., Meintanis S. G., Verdebout T. (April 2021). Nonparametric tests of independence for circular data based on trigonometric moments, arXiv 2104.14620, 15 pages.

[**R22**] Boglioni Beaulieu G., Lafaye de Micheaux P., Ouimet F. (December 2021). Counterexamples to the classical central limit theorem for triplewise independent random variables having a common arbitrary margin, arXiv 2104.02292, 15 pages.

[**R21**] Lafaye de Micheaux P., Ouimet F. A study of seven asymmetric kernels for the estimation of cumulative distribution functions, arXiv 2011.14893, 38 pages.

[R20] Achard S., Coeurjolly, J.-F., Lafaye de Micheaux P., Richiardi J. (November 2020). Inter-regional correlation estimators for functional magnetic resonance imaging, arXiv 2011.08269, 16 pages.

[R19] Henze N., Lafaye de Micheaux P., Meintanis S. (September 2020). Tests for circular symmetry of complex-valued random vectors, arXiv 2009.09216, 14 pages.

[R18] Desgagné A., Lafaye de Micheaux P. and Ouimet F. (July 2020). A comprehensive empirical power comparison of univariate goodness-of-fit tests for the Laplace distribution. arXiv 2007.06154, 37 pages.

[R17] Avanzi B., Boglioni Beaulieu G., Lafaye de Micheaux P., Ouimet F., Wong B. (March 2020). A counterexample to the central limit theorem for pairwise independent random variables having a common arbitrary margin, arXiv 2003.01350, 18 pages.

[R16] Lafaye de Micheaux P., Mozharovskyi P. and Vimond M. (Februray 2020). Depth for curve data and applications. arXiv 1901.00180, 62 pages.

[R15] Geenens G. and Lafaye de Micheaux P. (December 2019). The Hellinger Correlation. arXiv 1810.10276, 29 pages.

[R14] Duchesne P., Lafaye de Micheaux P. and Tagne Tatsinkou J.F. (December 2019). On strong consistency and asymptotic normality of one-step Gauss-Newton estimators in ARMA time series models. Technical report CRM-3371, Centre de Recherches Mathématiques de l'Université de Montréal, 20 pages.

[R13] Ducharme G. and Lafaye de Micheaux P. (February 2019). A goodness-of-fit test for elliptical distributions with diagnostic capabilities. arXiv 1902.03622, 35 pages.

[R12] Lafaye de Micheaux P. and Ouimet F. (September 2018). A uniform L^1 law of large numbers for functions of i.i.d. random variables that are translated by a consistent estimator. arXiv 1805.08813, 10 pages.

[R11] Desgagné A., Lafaye de Micheaux P. and Ouimet F. (September 2018). Goodness-of-fit tests for Laplace, Gaussian and exponential power distributions based on λ-th power skewness and kurtosis. arXiv 1809.02852, 15 pages.

[R10] Lafaye de Micheaux P., Liquet B. and Sutton M. (February 2017). A Unified Parallel Algorithm for Regularized Group PLS Scalable to Big Data. arXiv 1702.07066, 20 pages.

[R9] Desgagné A., Lafaye de Micheaux P., Leblanc A. (March 2011). Test of normality against generalized exponential power alternatives, Technical report CRM-3314, Centre de Recherches Mathématiques de l'Université de Montréal, 44 pages.

[R8] Tabelow K., Clayden J.D., Lafaye de Micheaux P., Polzehl J., Schmid V.J., Whitcher B. (December 2010). Image Analysis and Statistical Inference in Neuroimaging with **R**, Technical report 1578, Weierstrass Institute for Applied Analysis and Stochastics, 9 pages.

[R7] Bordier C., Dojat M. and Lafaye de Micheaux P. (December 2010). Temporal and Spatial Independent Component Analysis for fMRI data sets embedded in a **R** package, arXiv 1012.0269, 23 pages.

[R6] Coeurjolly J.-F., Drouilhet R., Lafaye de Micheaux P. and Robineau J.-F. (February 2009). `asympTest`: an **R** package for performing parametric statistical tests and confidence intervals based on the central limit theorem. arXiv 0902.0506, 19 pages.

[R5] Coeurjolly J.-F., Drouilhet R., Lafaye de Micheaux P. and Robineau J.-F. (February 2009). `asympTest`: an **R** package for performing parametric statistical tests and confidence intervals based on the central limit theorem. Technical report hal-00358375. Laboratoire Jean Kuntzmann. Université de Grenoble, 18 pages.

[R4] Lafaye de Micheaux P. (June 2007). Multivariate Statistical Methods in FMRI. Masters research thesis. Institut National Polytechnique de Grenoble. (In French).

[R3] Lafaye de Micheaux P. (December 2002). Independence tests in multivariate analysis and normality tests in ARMA models. Ph.D. thesis. Université de Montréal and Université Montpellier II.

[R2] Ducharme G.R. and Lafaye de Micheaux P. (February 2002). Goodness-of-fit tests of normality for the innovations in ARMA models. Technical report number 02-02. Groupe de biostatistique et d'analyse des systèmes. Université Montpellier II, 34 pages.

[R1] Lafaye de Micheaux P. (June 1998). Test de normalité pour les résidus d'un modèle ARMA. Masters research thesis, Université Montpellier II et École Nationale Supérieure Agronomique de Montpellier, 127 pages. (In French)

Work in progress

[A16] Ibenegbu A., Schaeffer A., Hewitt D., Lafaye de Micheaux P., Chandra R., Addressing unreliable negative data for the migration of the Bluebottle marine organism using machine learning models.

[A15] Grazian C, Jin Q, Lafaye de Micheaux P, Generalized Partial Least Square in Deep Neural Network.

[A14] Duchesne P., Lafaye de Micheaux P., Tran K., The CompQuadForm Package with Arbitrary-Precision Arithmetic

[A13] Beclin, M.-F., Lafaye de Micheaux P., Molinari N., Ouimet F., A Simple Linear Regression Model for Quantile Function Data Applied to Paired Pulmonary 3D CT Scans.

[A12] Cantwell R., Geenens G. and Lafaye de Micheaux P., Complex probability.

[A11] Geenens G., Lafaye de Micheaux P., Zou I. M., Deep-testing: the case of dependence detection.

[A10] Ho S., Lafaye de Micheaux P., Testing normality using neural networks – a proof of concept.

[A9] Lafaye de Micheaux P., Mozharovskyi P. and Vimond M., Depth for Random Probability Measures.

[A8] Henze N., Lafaye de Micheaux P., Matsui M., Meintanis S., Goodness-of-fit tests for Kotz-type distributions including in parametric garch-model specifications.

[A7] Geenens G., Lafaye de Micheaux P., Dimension-free nonparametric independence test.

[A6] Duchesne P., Lafaye de Micheaux P. and Tagne Tatsinkou J. F., On smooth tests of goodness of fit for vector ARMA time series models with structured parameterization.

[A5] Ebner B., Lafaye de Micheaux P., On how to use the covariance kernel of the limiting Gaussian process to approximate the null distribution of weighted L^2 statistics.

[A4] Lafaye de Micheaux P., Mozharovskyi P., Navarro F. and Zhu A., **R** on a Raspberry Pi: the RaspberryPiR package.

[**A3**] Lafaye de Micheaux P. and Léger C., Data-driven multiple linear regression: a bootstrap approach.

[**A2**] Lafaye de Micheaux P., Marchina B., On the effect of parameter estimation in limiting χ^2 U- and V-statistics involving complex-valued components.

[**A1**] Delseny Dominique, Lafaye de Micheaux Pierre, Data Science Book, in progress, *online book* datalyptus.com/DataScienceBook.

RESEARCH PROGRAM AND FUTURE DIRECTION

Research interests

Asymptotics, Biostatistics, Bootstrap, Complex random fields, Data Depth, Data Science, Dependence measures, Developing R packages, Hypothesis testing theory, Independent Component Analysis, Linear regression methods, Medical Imaging, Model selection, Multiple testing, Multivariate statistics, Neuroscience, Projection on Latent Structures, Raspberry Pi, Reproducible research, Sample size determination, Stochastic processes, Teaching, Time series analysis.

Overview of past research

Goodness-of-fit tests (for independent or dependent data)

The theory of Neyman's smooth goodness-of-fit tests consists in embedding the null density of i.i.d. observations in an exponential parametric family vast enough to take into account the way the data could depart from the postulated null hypothesis. Next Rao's test strategy, which consists in testing the nullity of some parameters of the embedding family, is applied in order to obtain a test statistic which has an asymptotic χ^2 distribution under the null. Following this approach, we have constructed with Ducharme G. (Pr. Montpellier II) a goodness-of-fit test of the normality of the innovations of an ARMA model with known mean. This work led to a technical report [**R0**] and has been published in [**J13**].

I then extended these results in [**J31**] (with its accompanying package `nortestARMA` [**P14**]) to the case of an unknown mean showing the impact on the asymptotic distribution of the estimation of the mean. The choice of the integer determining the size of the exponential embedding family is data-driven using a BIC-like criterion, and the computation of quantiles of the test statistics is refined through a third order correction.

Finally, I generalized the results to the multivariate VARMA model (not submitted yet). A similar approach was used in [**J28**] to test that complex observations come from a complex multinormal distribution, and in [**J36**] to obtain a goodness-of-fit test with diagnostic capabilities for elliptical distributions, along with its accompanying package `ECGofTestDx` [**P11**]. These results have been presented in several conferences ([**C10**], [**C18**], [**C19**], [**C20**], [**C28**], [**C32**]).

In the same vein, a collaboration started during my PhD with Desgagné A. (now Pr. UQAM, Montréal) has led us to propose a test of normality by using as an embedding family the set of the Generalized Exponetial Power densities. This family of distributions enables one to characterize and order the tails of a vast class of densities. The test we propose is thus well adapted to detect departures from normality in the tails of the distribution. This work has been presented in a few conferences ([**C1**], [**C5**], [**C12**]) and was published in [**J24**]. This work was adapted in [**J34**] to extend the famous Jarque-Bera test.

Related to this body of work, an R package called `PoweR` [**P16**] permits to conduct extensive Monte-Carlo simulations for Goodness-of-fit tests in a reproducible way. This work has been published in [**J29**] and presented in [**C29**].

Time series

With Duchesne P. (Pr. Université de Montréal), we obtain in [**J25**] the distributions for residual autocovariances in parsimonious periodic vector autoregressive models. We also recently submitted a paper on the strong consistency and asymptotic normality of one-step Gauss-Newton estimators in ARMA time series models [**S??**]. (See also my papers on goodness-of-fit tests for ARMA models just above.)

Tests and measures of dependence

We have proposed, with Bilodeau M. (Pr. Université de Montréal) an interesting characterization of independence using the Moëbius function. This allows us to obtain a mutual independence test between the p multivariate marginals (supposed Gaussian) of a random vector. This test is based on some Cramér-von Mises functionnal of a certain complex-valued random field involving characteristic functions. We also show how to test the serial independence of random vectors. This work has

been published in [**J14**] and has been presented in a conference ([**C2**]). A similar approach was taken with Bilodeau M. to generalize (to more than two qualitative variables) the classical Pearson's χ^2 test of independence. A paper describing this work has been published in [**J17**] and presented in two conferences ([**C9**], [**C11**]).

Next, we have extended this work, with Beran R. (Pr. University of California, Davis), to the case where the marginals are supposed unknown and are estimated by their empirical distribution function. The limiting distribution of our test statistic depends upon the unknown marginals, though, so we used Bootstrap methods, and proved their consistency, to obtain the critical values of the test. This work has been published in [**J15**] and presented in two conferences ([**C6**], [**C7**]). In both cases, the limiting distribution of the test statistics we obtained is an infinite weighted sum of chi-squared independent random variables. We proposed a methodology in the Highly Cited paper [**J20**] and an **R** package called `CompQuadForm` [**P20**] to compute the quantiles of such a distribution.

With Fan Y. (A/Prof UNSW Sydney), Penev S. (Pr. UNSW Sydney) and Salopek D. (Senior Lecturer UNSW Sydney), we have built in [**J32**] a non-parametric characteristic-function based test of independence between several random vectors with unspecified marginals. We have been able to estimate the eigenvalues of the underlying Fredholm operator, which permits to approximate the limiting distribution. This work has been presented in three conferences ([**C34**], [**C35**], [**C39**]). An **R** package called `IndependenceTests` [**P19**] implements all the above independence tests.

With Geenens G. (Senior Lecturer, UNSW Sydney), we developed a margin-free non-parametric measure of dependence based on the Hellinger distance that we call the Hellinger correlation. This work was recently accepted [**J??**] and was presented in two conferences ([**C44**], [**C45**]). An **R** package called `HellCor` [**P10**] implements this measure.

Laws of sums of random variables

With Léger C. (Pr. Université de Montréal), we were interested in the construction of confidence intervals for the parameters of a regression model that takes into account the uncertainty introduced by a preliminary selection of models. For this work, theoretical results on the convergence (in probability and almost surely) of Bootstrap estimators of the parameters were required. These preliminary results were presented in a few conferences ([**C3**], [**C4**]). This led us to derive in [**J22**] a law of the single (non-iterated) logarithm for weighted sums of arrays. This probability result was presented in [**C22**] and [**C24**].

With Ouimet F. (Post-doc Caltech), we derived in [**J33**] a new uniform L^1 law of large numbers for functions of i.i.d. random variables. This result was required to obtain the limiting distribution of a goodness-of-fit test for the Laplace distribution.

With Avanzi B. (Pr. Melbourne University), Boglioni-Beaulieu (PhD student, UNSW Sydney) and Wong B. (Pr. UNSW Sydney), we constructed a sequence of pairwise (but non-mutually) independent and identically distributed random variables whose standardized sum has a limiting distribution which is *not* normal. We obtained explicitly the density and characteristic function of this limiting distribution. This sheds some new light on how crucial the assumption of (mutual) independence is for the Central Limit Theorem to hold [**J38**].

Teaching and software

With Liquet B. and Drouilhet R., we published with Springer two books in French on the **R** software [**B1**] (527 pages) and [**B2**] (674 pages). These books have been translated into English, Chinese and Indonesian.

I am interested in teaching statistical concepts by using and producing computer tools. With Liquet B. (Pr. University of Pau), we proposed in [**J16**] and [**J18**] an intuitive visual-minded explanation of the four classic modes of convergence of a random sequence. An accompanying **R** package called `ConvergenceConcepts` [**P22**] enables one to actually visualize these types of convergence on a computer. This work was presented in two conferences ([**C15**], [**C16**]). With Coeurjolly J.-F. (Pr. UQAM, Montreal) and Drouilhet R. (McF, Grenoble Alpes University), we built an **R** package called `asympTest` [**P21**] to perform an asymptotic version (robust to non normality) of the classical parametric tests that students learn in undergraduate courses. Mean, variance and proportion tests, for one and for two samples, are available. The article [**J19**] describes these results and how to use the package.

More recently, I started the development of a software package called `MATHxxxx`. Its use was presented in [**C47**] along with other digital enhancements of the largest introductory course of Statistics at UNSW Sydney. This package will greatly facilitate the creation of interactive slides (PDF or HTML) to teach Statistics courses.

Supervised and unsupervised dimension reduction methods

In [**J21**], co-authored with Dojat M. (INSERM Researcher), we describe how to perform a temporal Independent Component Analysis (tempICA) on fMRI data (supposed to be impracticable because of the huge size of the data). This work uses properties of the Singluar Value Decomposition and has been presented in some Neuroscience seminars. It is implemented in the **R** package `AnalyzeFMRI` [**P23**] and was presented in two conferences ([**C14**], [**C13**]).

In [**J27**], [**J3**] and [**J35**], we successively extend the classical Projection on Latent Structures (PLS) method by 1) replacing correlation by a true dependence measure in the optimization criterion; 2) by incorporating group and sparse group penalties to the optimization criterion; and 3) by allowing its use for Big Data (big n and/or big p). These works were presented in seven conferences ([**C36**], [**C37**], [**C38**], [**C41**], [**C43**], [**C54**], [**C50**]).

Sample size determination, multiple testing problem

With Lemaire V. (PhD Senior Scientist at Genentech, San Fancisco), we derived in [**J23**] a formula to compute the necessary sample size in order to guarantee a fixed minimal power when applying a statistical test of the hypothesis that the core of press coated tablets is properly centered. This work was presented in a conference ([**C21**]).

With Liquet B. (Pr. University of Grenoble), Marque S. (PhD, Principal at IQVIA) and Riou J. (McF University of Angers), we obtained in [**J26**] formulas to compute the power and determine sample sizes in clinical trials with multiple primary continuous correlated endpoints. With Delorme P. (MSc), Liquet B. and Riou J., we proposed in [**J30**] Type II generalized Family-Wise Error Rate formulas that have nice applications to sample size determination. The approaches in these two papers are implemented in the **R** package `rPowerSampleSize` [**P17**]. These results have been presented in six conferences ([**C25**], [**C26**], [**C27**], [**C30**], [**C31**], [**C40**]).

Medical applications, neuroscience

I like to bring my statistical expertise to researchers, mainly in the medical field. This led to three publications [**J1**], [**J2**] and [**J10**]. I also have a special interest in cognition [**J7**], as well as in neuroscience and more broadly medical imaging [**J4**], [**J8**], [**J9**], [**J11**], [**C17**], [**C23**], [**C33**].

With Mozharovskyi P. (Telecom Paris) and Vimond M. (ENSAI), we generalized in [**J??**] the data depth method originally developped by Tukey to a theory and methodology that enables one to deal with curve objects. We applied this technique to analyze DTI brain fibers. This work was recently (re)submitted to the *Journal of the American Statistical Association* and was presented in seven conferences ([**C42**], [**C46**], [**C48**], [**C49**], [**C51**], [**C52**], [**C53**]).

Future research plan

I lead three inter-related innovative and strongly interdisciplinary research projects.

Project 1): dependence measures: unravelling complex dependencies for polymorphic V^3 data

Researchers involved: Dr Geenens G. and Pr Penev S. (UNSW Sydney), Pr Meintanis S. (National and Kapodistrian University of Athens)

Project 2): (neuro)imaging-genetics

Researchers involved: A/Prof Wen W. (UNSW Sydney).

Project 3): Big Data and Internet of Things: open data and knowledge extraction for every one

Researchers involved: Dr Navarro (ENSAI, France), Dr Mozharovskyi (Telecom Paris, France).

TEACHING ACTIVITIES

Course development

2020 - Development from scratch of the brand new capstone course ZZSC9020 "Data Science Project", Online MSc in Data Science.

2019 - Development from scratch of the brand new capstone course DATA3001 "Data Science and Decisions in Practice", BSc in Data Science and Decisions.

- Joint development across 3 faculties of the fully online Master course "Data Visualisation and Communication", Master of Analytics

- Led the Digital Uplift and redesign of MATH1041 "Statistics for Life and Social Science", largest Statistics course at UNSW: redesign of lecture slides, case study videos, concept map, RShiny applets and animations, Youtube channel.

2018 - Redesign of MATH3821 "Statistical Modelling and Computing" (> 1,000 slides)

2017 - Redesign of MATH5806 "Applied Regression Analysis" (> 1,000 slides)

I am also developing the **R** package `MATHxxxx` to ease the creation of interactive lecture slides for any Statistics course.

Professional certification

• **2017:** Successful completion of the UNSW Sydney's Foundation of University Learning and Teaching (FULT) program. *This one-semester comprehensive blended learning program aims to introduce teaching staff to the theory and pratice of learning and teaching at university, and to assist staff in developing a conception of teaching as a reflective practice that draws on their own methods, the experiences of students and colleagues, and relevant research.*

Courses delivered

Ensae-Ensai Continuing Education (Cepe):

2023

- ▶ BDF 23 – Linear regression
  12 hours – Data Analyst certificate
- ▶ BD28 – Advanced R and introduction to NoSQL
  7 hours – Data Analyst certificate
- ▶ BD28 – Advanced R and SQL
  7 hours – Data Scientist certificate
- ▶ BD28 – Web Scrapping pipeline
  7 hours – Data Analyst certificate

Université Paul-Valéry Montpellier 3:

2023

- ▶ TE44MI – Data Science 2
  52 hours – BSc. MIASHS
- ▶ TW221MI – Analysis of Time Series Data
  17 hours – MSc. MIASHS
- ▶ Marathon du Web
  5 days – MSc. MIASHS
- ▶ TW221GV – Territory Statistical Tools
  22 hours – MSc. IGPE
- ▶ TV23SLA Quantitative Methods for Corpus
  21 hours – MSc. ADIREO
- ▶ TV15MI, TV25MI TER Data Studies
  6 hours – MSc. MIASHS

2022

- ▶ TW122MI – Multivariate Data Analysis
  15 hours – MSc. MIASHS
- ▶ TE52MI – Data Science 2
  26 hours – BSc. MIASHS
- ▶ TW331XS – Statistical Tools for Diagnostic
  15 hours - MSc. ESEEC
- ▶ TW221GV – Territory Statistical Tools
  18 hours – MSc. IGPE
- ▶ Marathon du Web
  5 days – MSc. MIASHS
- ▶ TW331XS – Statistical Tools for Diagnostic
  15 hours - MSc. ESEEC
- ▶ TE31MI –Statistics and Probability, Bivariate Data
  15 hours – BSc. MIASHS
- ▶ TW221MI – Analysis of Time Series Data
  17 hours – MSc. MIASHS
- ▶ TV23SLA Quantitative Methods for Corpus
  18 hours – MSc. ADIREO
- ▶ TV15MI, TV25MI TER Data Studies
  6 hours – MSc. MIASHS

2021

- ▶ TW313MI – Massive Data
  10.5 hours – MSc. MIASHS
- ▶ E5PJ1MI5 – Statistical Tools, pre-professionalization – 36 hours – BSc.
- ▶ E6PJ1MI5 – Statistical Tools, pre-
- ▶ E311MI5 –Statistics and Probability, Bivariate Data
  42 hours – BSc. MIASHS
- ▶ TW122MI – Multivariate Data Analysis
  17 hours – MSc. MIASHS
- ▶ V22GEI5 – Territory Statistical Tools

professionalization – 36 hours – BSc.

▶ Processing of questionnaires and quantitative data – 8 hours – MSc. MAVINUM

▶ TV15MI, TV25MI TER Data Studies
6 hours – MSc. MIASHS

14 hours – MSc. IGPE

▶ Marathon du Web
5 days – MSc. MIASHS

2020

▶ V3EMI5 – Advanced Data Mining for Human & Soc. Sci. – 10 hours – MSc. MIASHS

▶ V31XS5 – Statistical Tools for Diagnostic
19.5 hours - MSc. ESEEC

▶ E311MI5 –Statistics and Probability, Bivariate Data
36 hours – BSc. MIASHS

▶ V3DMI5 – Multivariate Data Analysis for H&SS
19.5 hours – MSc. MIASHS

UNSW Sydney:

2025

▶ MATH1041 Statistics for Life and Social Science.
36 hours - B.S.

2024

▶ MATH1041 Statistics for Life and Social Science.
36 hours - B.S.

▶ MATH5925 – Project.
18 hours - MSc. (Online)

▶ ZZSC5855 – Multiv. Analysis for Data Scientists H5.
(Fully Online). 24 hours - MSc. Data Science

2023

▶ ZZSC9020 – Data Science Project H2.
(Fully Online). 24 hours - MSc. Data Science

▶ MATH5925 – Project.
9 hours - MSc. (Online)

▶ ZZSC5855 – Multiv. Analysis for Data Scientists H4.
(Fully Online). 24 hours - MSc. Data Science

2022

▶ MATH1041 Statistics for Life and Social Science.
36 hours - B.S. (Online)

▶ ZZSC9020 – Data Science Project H5.
(Fully Online). 24 hours - MSc. Data Science

2021

▶ ZZSC9020 – Data Science Project H3
(Fully Online). 24 hours - MSc. Data Science

▶ ZZSC9020 – Data Science Project H6
(Fully Online). 24 hours - MSc. Data Science

2020

▶ ZZSC5905 – Statistical Inference for Data Scientists (Fully Online). 6 hours - MSc.

▶ DATA3001 Data Sciences & Decisions in Practice.
36 hours - B.S. in Data Science

2019

▶ MATH1041 Statistics for Life and Social Science.
48 hours - B.S.

▶ DATA3001 Data Sciences & Decisions in Practice.
36 hours - B.S. in Data Science

2018

▶ MATH1041 Statistics for Life and Social Science.
48 hours - B.S.

▶ MATH3821 Statistical Modelling and Computing.
36 hours - MSc. in Statistics

2017

▶ MATH1041 Statistics for Life and Social Science.
48 hours - B.S.

▶ MATH5806 Applied Regression Analysis.
36 hours - MSc. in Statistics

École Nationale de la Statistique et de l'Analyse de l'Information, ENSAI (Rennes):

2017

▶ R Shiny.
3 hours - B.S. ENSAI

2016

▶ Programming with Big Data in R using Distributed or Shared Memory MBDINF14.
21 hours - MSc. in Big Data

▶ Statistical Hypotheses Testing 1ASTA11.
39 hours - B.S. ENSAI

▶ Programming with Big Data in R using Distributed or Shared Memory MBDINF14.
24 hours - MSc. in Big Data

2015

▶ Statistical Inference and Hypothesis Testing MBDSTA02.
18 hours - MSc. in Big Data

Université de Montréal (Montréal):

2015

▶ Concepts and Methods in Statistics STT2700.
45 hours - B.S. - Math./Stat./Act.

▶ Asymptotics STT6300.
45 hours - MSc and PhD in Statistics

2013

▶ Linear Regression STT2400.
45 hours - B.S. - Math./Stat./Act.

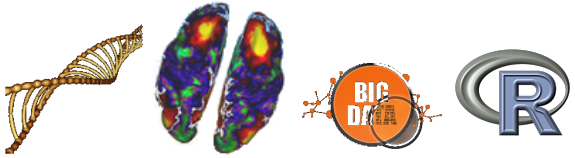
▶ Regression STT6415.
45 hours - MSc and PhD in Statistics

2012

▶ Linear Regression STT2400.
45 hours - B.S. - Math./Stat./Act.

▶ Introduction to statistics STT1700.
45 hours - B.S. - Math./Stat./Act.

▶ Introduction to statistics STT1700.
45 hours - B.S. - Math./Stat./Act.



2011
- ▶ Linear Regression STT2400.
  45 hours - B.S. - Math./Stat./Act.
- ▶ Introduction to statistics STT1700.
  45 hours - B.S. - Math./Stat./Act.
- ▶ Regression STT6415.
  45 hours - MSc and PhD in Statistics

2010
- ▶ Linear Regression STT2400.
  45 hours - B.S. - Math./Stat./Act.
- ▶ Regression STT6415.
  45 hours - MSc and PhD in Statistics
- ▶ Regression STT6415.
  45 hours - MSc and PhD in Statistics

2001
- ▶ Introductory Statistics STT1971.
  63 hours - B.S. - Mixed public

2000
- ▶ Biostatistics and Epidemiology STT2974.
  63 hours - B.S. in nurse sciences

Université Pierre Mendès France (mainly in IUT STID, Grenoble):

2007-08
- ▶ Estimation and hypothesis testing.
  42 hours - Second year
- ▶ Advanced **R** material.
  20 hours - Second year
- ▶ ANOVA.
  20 hours - Second year
- ▶ Simulation techniques.
  14 hours - First year
- ▶ **R** statistical software.
  12 hours - Second year
- ▶ Linear Regression.
  24 hours - First year, 24 hours - Special year
- ▶ Principal Component Analysis.
  28 hours - Special year

2006-07
- ▶ Introductory Descriptive Statistics.
  70 hours - First year
- ▶ **R** statistical software.
  12 hours - Second year

2005-06
- ▶ Linear Regression.
  31 hours - Second year
- ▶ **R** statistical software.
  18 hours - Second year
- ▶ Principal Component Analysis.
  14 hours - Special year
- ▶ Introductory Descriptive Statistics.
  70 hours - First year, 24 hours - Special year
- ▶ SPSS statistical software.
  8 hours - Second year

2004-05
- ▶ Introductory Descriptive Statistics.
  68 hours - First year
  44 hours - Special year
- ▶ Principal Component Analysis.
  28 hours - Special year
- ▶ Bootstrap.
  12 hours - Master MASSS First year
- ▶ Linear Regression.
  24 hours - Second year
- ▶ HTML, Javascript, SAS and SCL.
  18 hours - Second year

2003-04
- ▶ Introductory Descriptive Statistics.
  67,5 hours - First year
- ▶ Principal Component Analysis.
  24 hours - Second year
  20 hours - Special year.
- ▶ Linear Regression.
  73,5 hours - Second year

Université Montpellier II (Montpellier):

1999-00
- ▶ Introductory course to SPLUS.
  Applications in Data Analysis. - 50 hours - MSc in Plant Phsyiology

1998-00
- ▶ Descriptive Statistics.
  150 hours - DEUG B SV option BP

Peer review of teaching

Summative Peer Review of Teaching allows teaching staff who apply for academic promotion or UNSW Awards for Teaching (Excellent Teachers) to provide direct evidence of their teaching practice to their respective committees.

The next three pages contain the report made in 2019 by two reviewers (chosen by the university outside my school for their excellent track record in learning and teaching as evidenced by their teaching experience, knowledge of learning and teaching, teaching awards, publications or grants). See teaching.unsw.edu.au/summative-peer-review for more details.

Review Details

Reviewee's name:	Pierre Lafaye de Micheaux
Faculty:	Faculty of Science
School:	Sch Mathematics & Statistics (MATH)
Course code and name:	MATH1041 Stats for Life & Soc Sciences
Type of class:	lecture
Number of students enrolled:	251
Review type:	SYNC:FACE-TO-FACE
Date and time of the review session:	21/03/2019 2:00 PM
Dimensions of teachings observed:	• Dimension 1: Students are actively engaged in learning • Dimension 2: Students prior knowledge and experience is built upon • Dimension 5: Students are aware of key learning outcomes • Dimension 6: Actively links theory and practice through research, industry, professional or discipline examples • Dimension 7: Uses learning environments, education resources and techniques appropriately • Dimension 8: Seeks feedback on students' understanding and acts on this accordingly

Evaluation: Reviewer 1

- **Dimension 1: Students are actively engaged in learning**
  Effectiveness: Very effective
  Examples: Many examples
  Comment:
  The first thing I noticed was the high number of students who attended (c. 80-100), the fact they all got there early and there was an evident 'buzz' and interest in the room. Students were obviously engaged with the delivery of the lecture and were following along on the slides/Moodle. Pierre manifested a real interest in the material but also with whether his students really understood the material ('At the end of the last lecture I had a question from several students who wanted clarification about…' said a slide at the beginning of the lecture, which meant that he started the session by recapping and explaining again). This produced an environment where students felt that the teacher was really engaged and really cared that they understood the key concepts. This was excellent. Students were also paired up to answer questions (using the 'think/pair/share' technique).

- **Dimension 2: Students prior knowledge and experience is built upon**
  Effectiveness: Very effective

weeks (such as the use of the 'Why?' slide at the beginning of the lecture). The one that I thought was really helpful to orient the students was the 'Wall of Knowledge' on the Prezi slide that helped students to see and understand how what they were learning fitted into the overarching themes of the course.

- **Dimension 5: Students are aware of key learning outcomes**
  Effectiveness: Very effective
  Examples: Many examples
  Comment:
  'The Agenda' slide and the 'why' slide at the beginning of the lecture were good for orienting students and Pierre signalled the importance of particular concepts throughout the lecture on his slides by using colours and icons to signal that understanding a particular aspect of the material was a learning outcome, etc.

- **Dimension 6: Actively links theory and practice through research, industry, professional or discipline examples**
  Effectiveness: Effective
  Examples: Some examples
  Comment:
  Pierre discussed case studies in his lecture and made constant reference to how particular examples were 'more complex' in 'real life'. Although I did not personally observe this as it was in the second hour, I understand from the pre-observation meeting that the second hour featured interviews of researchers who use statistics.

- **Dimension 7: Uses learning environments, education resources and techniques appropriately**
  Effectiveness: Very effective
  Examples: Many examples
  Comment:
  This was a real strength of the lecture I observed. Pierre used Zoom and Prezi, using a surface pro tablet with an electronic pen to annotate the slides (with equations, notes, etc.) whilst walking around the lecture hall. The animated videos that Pierre also used were an effective means to keep the students engaged and cater to different means of student understanding (even though Pierre didn't ask to be reviewed on this particular dimension)

- **Dimension 8: Seeks feedback on students' understanding and acts on this accordingly**
  Effectiveness: Effective
  Examples: Many examples
  Comment:
  Pierre walked around the room to gather students' feedback and answer their questions during the time they were working in pairs or small groups. (I liked the fact that when he did so, he made a point of looking over students' heads to see what they were writing and sketching on their laptops so that he could appraise their work – and also implicitly signalling the importance of the small group work as not a chance to 'switch off' in between lecturing.) He also made a point of punctuating his lecture delivery by asking whether students had understood particular concepts.

Evaluation: Reviewer 2

- **Dimension 1: Students are actively engaged in learning**
  Effectiveness: Very effective
  Examples: Many examples

another to discuss important statistical concepts), and these were effective at keeping students engaged. I think that Dr Lafaye De Micheaux is at a disadvantage in that many students probably don't naturally think intro stats would be an interesting and engaging course. I believe his teaching style overcame these student preconceptions with his enthusiastic and engaging teaching style.

- **Dimension 2: Students prior knowledge and experience is built upon**
  Effectiveness: Effective
  Examples: Some examples
  Comment:
  Dr Lafaye De Micheaux made clear links to previous lectures and knowledge. He effectively used techniques such as the wall of knowledge and bricks of knowledge.

- **Dimension 5: Students are aware of key learning outcomes**
  Effectiveness: Effective
  Examples: Some examples
  Comment:
  Students were made aware of the lecture learning outcomes and how they fit within the course. Students were clearly informed of the criteria for success (i.e. if what they learned meets what is expected of them through the course learning outcomes).

- **Dimension 6: Actively links theory and practice through research, industry, professional or discipline examples**
  Effectiveness: Effective
  Examples: Some examples
  Comment:
  Case studies were used in the class, and the importance of the concepts to statistical researchers was explored in the class. Broader links to research and industry were included in detail, but this is a first year class, and these links would probably not have been appropriate.

- **Dimension 7: Uses learning environments, education resources and techniques appropriately**
  Effectiveness: Very effective
  Examples: Many examples
  Comment:
  Dr Lafaye De Micheaux demonstrated an excellent use of the learning environment. He used R software, interactive tablet lecturing style, web polling, and animations. It is often difficult in these large first year classes to effectively use a learning environment (the theatres are large, students can be anonymous or simply disengage at the back the room). Dr Lafaye De Micheaux's use of the learning environment clearly supported student learning.

- **Dimension 8: Seeks feedback on students' understanding and acts on this accordingly**
  Effectiveness: Effective
  Examples: Some examples
  Comment:
  Dr Lafaye De Micheaux asked questions and seeked feedback throughout the lecture. He demonstrated the ability to adjust his lecture based on student feedback and his assessment of whether the students were understanding the lecture content.

Work-study Master's and Undergraduate supervision

- **Work-study Master's "alternance" (7)**

2023 - Mame Fatou Gueye, M2, *Aternance chez Davele sur l'agrivoltaïsme.*

2022 - Karim Salah Salah, M2, *Le Conseil départemental se met à la data science.*

- Gilles Noukela, M2, *Amélioration de la gestion des risques et opportunités associés à la masse de l'avion.*
- Mame Fatou Gueye, M1, *Aternance chez Kuehne Nagel & Projet.*
- Gérard Kouassi Kouadio, M1, *Analyse de données portant sur l'émission de CO2 des véhicules commercialisés en France en 2014.*

2021 - Karim Salah Salah, M1, *Le Conseil départemental se met à la data science.*

- Gilles Noukela, M1, *Amélioration de la gestion des risques et opportunités associés à la masse de l'avion.*

- **Undergraduate students (22)**

2011 - Marie-Hélène Lafond, summer research training at DMS, *Analyses en Composantes Indépendantes.*

2009 - Basile Vauquois, *Équipe Edyp Recherche, CEA, Structuration de données protéomiques en vue de leur analyse statistique sous* R.

- Carl Vincent, *Équipe Previsions du Centre Hydro-météorologique Alpes, Développement et application d'outils d'analyse statistique des prévisions hydrologiques.*
- Hugo Lafaye de Micheaux, *Institut des Neurosciences de Grenoble, Analyse en Composantes Indépendantes sur données d'IRMF sous* R.

2008 - Dorine Trousseau, *Office fédéral de la Statistique, Analyse sur les méthodes d'appareillements des entreprises export/import au REE.*

- Julie France. *CEA, Traitement statistique de données de puces à ADN.*
- Vivien Beolet. *Rhodia Recherches et Technologie, Développement de modèles de prévision marketing sous SAS.*
- Mame Aissa Sow. *AGECSA, Analyse de la patientèle des Centres de Santé.*

2007 - Coralie Gibralta, *Société Ecopêche. Evolution d'un site Web dédié aux metteurs en marché.*

- Sarah Fustinoni, *Epidémie de rachitisme calcique au Bangladesh. Evaluation de l'efficacité de différents traitements.*
- Ruchong Zhao, *Etudes concernant l'impact de l'interaction sociale sur la fixation des yeux.*

2006 - Jeremy Lafranceschina, *Étude marketing pour le Dauphinais Libéré.*

2005 - Caroline Naget, *Informatisation du fonds documentaire du LabSAD à l'aide du logiciel libre Koha.*

- Toufik El Messaoudi, *Etude épidémiologique au service GFEP du centre hospitalier Saint Jean de Dieu.*
- Olfa Khalfallah, *Bilan de 4 ans d'activités d'un service de soins infirmiers à domicile (Handi Service).*
- Ursula Grimaldo, *Mise en place des indicateurs de performance et informatisation de la gestion des plaintes (Centre Hospitalier de Cannes).*
- Laurent Moiroud, *Enquête sur le suivi des documents professionnels dans le réseau périnatal des deux Savoies.*
- Elsa Decool, *L'impact de la visite de la déléguée médicale sur la participation des médecins généralistes isérois.*

2004 - Gilles Marconet, *Création d'un profil des clients non fidèles au Crédit Agricole.*

- Thomas Coone, *Suivi et contrôle de qualité d'oligo-éléments au CHU de Grenoble.*
- Antoine Poncet, *Etude collaborative sur l'autisme de l'enfant: recherche des facteurs de risques organiques.*
- Romain Legrand, *Aide à la structuration des conditions commerciales des clients Euromaster.*