

Charles BOUVEYRON

Full Professor of Statistics, Université Côte d'Azur
Chair in Artificial Intelligence & Director of Institut 3IA Côte d'Azur
Head of the MAASAI research team, Inria
Associate Editor for The Annals of Applied Statistics

Vita



Born on January 1979 in Lyon (France), married, 3 children
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Employment

- 2013-... **Full Professor of Applied Mathematics (Statistics)**
(Formally: *Professeur des Universités de classe exceptionnelle en Mathématiques Appliquées, section CNU 26*)
Laboratoire J.A. Dieudonné, UMR CNRS 7531, MAASAI team, Université Côte d'Azur (2017-...)
Laboratoire MAP5, UMR CNRS 8145, Université Paris Descartes (2013-2017)
- 2019-... **Chair in Artificial Intelligence**
Institut 3IA Côte d'Azur (one of the four French interdisciplinary institutes on AI, 3ia.univ-cotedazur.eu)
- 2017-... **Senior Researcher, INRIA (en délégation)**
Team Maasai, INRIA Sophia-Antipolis
- 2007-2013 **Assistant-Professor of Applied Mathematics**
(Formally: *Maître de Conférences en Mathématiques Appliquées*)
Laboratoire SAMM, EA 4543, Université Paris 1 Panthéon-Sorbonne
- 2006-2007 **Post-doctoral researcher in Statistics**
Department of Mathematics & Statistics, Acadia University, Canada
- 2003-2006 **Ph.D. student in Statistics**
Mistis team, INRIA Rhône-Alpes, Grenoble

Education

- 2012 **Habilitation à diriger des recherches (HDR) of Applied Mathematics**
Title: Some contributions to statistical learning in high dimension, adaptive and on complex data.
Reviewers: Adrian Raftery, Stéphane Robin & Fabrice Rossi.
Award: "Très honorable", defended on November, 29, 2012, Université Paris 1.
- 2006 **Ph.D. in Applied Mathematics (Statistics)**
Title: Modeling and classification of high-dimensional data with applications in image analysis.
Advisors: Cordelia Schmid & Stéphane Girard. Reviewers: Gilles Celeux & Fionn Murthagh.
Award: "Très Bien", Université Joseph Fourier, Grenoble 1.
- 2003 **Master of Research (DEA) of Statistics**
Obtained with honors, Université Grenoble 1

Academic responsibilities

- 2021-... **Director of Institut 3IA Côte d'Azur** (3ia.univ-cotedazur.eu)
- 2019-... **Head (and founder) of the MAASAI research team**, a joint team between INRIA & Université Côte d'Azur
- 2013-2017 Head of the department of Statistics, Laboratoire MAP5, Université Paris Descartes
- 2013-2017 Member of the scientific board of Laboratoire MAP5, Université Paris Descartes

- 2012-2013 Elected member of the scientific board of Laboratoire SAMM, Université Paris 1
- 2010-2014 Elected member of the consultative scientific council 26-27, Université Paris 1
- 2010-... Member of 19 selection committees for Professor and Assistant-Professor positions (Univ. Paris 1, Paris 5, Côte d'Azur, TelecomParis, Montpellier 3, Bordeaux 1, ...)

Scientific responsibilities

- 2021-... Member of the Scientific Orientation Council of Centre Antoine Lacassagne, Unicancer center of Nice
- 2021-... Member of the steering committee of OTESIA (*Observatoire des impacts technologiques et sociétaux de l'IA*)
- 2019-2020 **Deputy Scientific Director of the Institut 3IA Côte d'Azur**
- 2017-... Member of the steering committee of the Medical Data Lab, Université Côte d'Azur
- 2016-... **Associate editor of "The Annals of Applied Statistics"**, a journal of the Institute of Mathematical Statistics
- 2014-2017 Member of the steering committee of the Fondation des Sciences Mathématiques de Paris (FSMP)
- 2010-2015 President of the «Statistics and Image» group of the French Statistical Society (SFdS)
- 2011-... Expert for the French (ANR), Belgian (FNRS) and Czech (GACR) research agencies
- 2011-... Invited editor for 3 special issues of the Journal of the French Statistical Society (J-SFdS)
- 2012-... Member of the scientific committee of 4 international conferences (GFKL, ESANN, JDS-SFdS, SFC)
- 2005-... Reviewer for more than 20 international journals (JRSS, CSDA, STCO, COST, ADAC, ...)

Teaching responsibilities

- 2022-... **Director of the EFELIA Côte d'Azur program** for advancing education on AI, Université Côte d'Azur Program funded by the French initiative for education on AI, coordinated with the network of 3IA institutes
- 2017-2020 **Director (and founder) of the MSc Data Science & Artificial Intelligence**, Université Côte d'Azur International 2-year graduate program in AI, a 3IA Côte d'Azur labeled program
- 2013-2017 **Director (and founder) of the 2nd year of DUT STID ("en alternance")**, IUT Paris Descartes Undergraduate Maths & Stat training program where students spend half of time within companies.

Teaching

- 2017-... **Professor Université Côte d'Azur** (~64h ETD/an)
- Statistical learning in high dimensions, MSc Data Science & AI
 - Statistical analysis of complex data, MSc Data Science & AI
 - Case studies in Data Science, MSc Data Science & AI
 - Statistical learning with applications in R, DU IA & Santé
- 2013-2017 **Professor IUT Paris Descartes** (~235h ETD/an)
- Multivariate Statistics, 1st year DUT STID
 - Data analysis, 2nd year DUT STID
 - Advanced methods in Data Mining, Licence Pro Data Mining
 - Statistical analysis of networks, DU Analyste Big Data
 - Classification, DU Data Visualisation
 - + Classification, 2nd year Actuarial sciences, ISUP, Université Paris 6 (2013-2015)
- 2007-2013 **Assistant and Associate-Professor at Université Paris 1 Panthéon-Sorbonne** (~240h ETD/an)
- Probability and Statistics, 1st year Magistère Finance
 - Data analysis, M1 MAEF
 - Probability and Statistics with R, M2 Pro TIDE
 - Computational statistics, M2 Pro TIDE
 - Data analysis and data mining, M2 Pro MIAGE

Ph.D. students and postdocs

2008-... **Supervision of 11 Ph.D students (4 ongoing):**

- Giulia Marchello (2020-...), Statistical learning from dynamic bipartite networks with heterogeneous edges, Institut 3IA Côte d'Azur, Inria & Université Côte d'Azur.
- Rémi Boutin (2020-...), Deep generative models for network analysis, Université de Paris.
- Baptiste Pouthier (2019-...), Multimodal learning from audio and video sources, NXP, Inria & Université Côte d'Azur.
- Dingge Liang (2019-...), Deep generative models for recommender systems, Institut 3IA Côte d'Azur, Inria & Université Côte d'Azur.
- Alexandre Saint-Dizier (2017-2020), Bayesian deep learning for image restoration, Université Paris Descartes & Ecole Polytechnique.
- Nicolas Jouvin (2017-2020), Statistical learning for image segmentation with a textual supervision: application to cancer detection, Université Paris 1 & Institut Curie.
- Warith Harchaoui (2016-2020), Model-based deep learning for mixed and complex data, Université Paris Descartes & Oscaro.com.
- Pierre-Alexandre Mattei (2014-2017), Model-based sparse clustering for massive and high-dimensional data, Université Paris Descartes.
- Rawya Zreik (2013-2016), Statistical analysis of temporal networks and applications to historical sciences, Universities Paris 1 & Paris Descartes.
- Anastasios Bellas (2011-2014), Anomaly detection in high-dimensional data streams, University Paris 1 & SNECMA.
- Camille Brunet (2008-2011), Sparse and discriminative clustering with application to Cytology, Universities Paris 1 & Evry.

2015-... **Supervision of 5 postdoctoral researchers (1 ongoing):**

- Aude Sportisse (2021-2023), Deep latent variable models with missing data, Inria & Institut 3IA Côte d'Azur.
- Gabriel Wallin (2020-2021), Co-clustering of multivariate longitudinal data, Inria & Université Côte d'Azur.
- Marco Corneli (2017-2019), Co-clustering of textual data matrices, Université Côte d'Azur.
- Fanny Orhac (2017-2019), Joint statistical analysis of radiomic and metabolomic features to improve diagnosis and therapy in oncology, Inria Sophia-Antipolis.
- Laurent Bergé (2015-2016), Clustering of networks with textual edges, Université Paris 5.

Research evaluation

2014-... **Reviewer or comity member of 3 HDR theses**

Pierre Barbillon, AgroParisTech, 2020; Thomas Laloë, Université Côte d'Azur, 2018; Stéphane Chrétien, Université de Franche-Comté, 2014.

2012-... **Reviewer and committee member of 10 Ph.D. theses**

Faustine Bousquet, Université de Montpellier, 2020; Bertrand Beaufils, Université Paris Saclay, 2020; Andrea Cappozzo, Università degli Studi di Milano-Bicocca, 2019; Léna Carel, Université Paris Saclay, 2019; Alexis Arnaud, Université Grenoble Alpes, 2018; Kevin Kaye, Université Grenoble Alpes, 2017; Vincent Audigier, AgroCampus Ouest, 2015; Johanna Baro, Université Paris-Est, 2015; Julie Hamon, Université Lille 1, 2013; Marie Galligan, University College Dublin, Irlande, 2013; Sanjeena Subedi-Dang, University of Guelph, Canada, July 2012.

2010-... **Member of 16 Ph.D. thesis committees**

Amina Ghrissi, Université Côte d'Azur, 2021; Benoît Audelan, Université Côte d'Azur, 2021; Aude Sportisse, Sorbonne Université, 2021; Amina Ghrissi, Université Côte d'Azur, 2021; Margot Selosse, Université Lyon 2, 2020; Patricio Cerda, Université Paris Saclay, 2019; Amandine Schmutz, Université Lyon 2, 2019; Adrien Lagrange, Université de Toulouse, 2019; Antoine Houdard, Université Paris Descartes, 2018; Valérie Robert, Université Paris Sud, 2017; Jérémie Kellner, Université Lille 1, 2016; Alberto Lumberras, Université Lyon 2, 2016; Rebecca Baeur, Université Paris Descartes, 2015; Nadia Kalfha, Université Paris 6, 2015; Romain Bar, Université de Lorraine, 2013; Cécilia Damon, Université Paris Sud, 2010.

2005-... **Supervision of 10 Master students**

G. Marchello (Univ. di Perugia), A. Saint-Dizier (Polytechnique), N. Jouvin (Paris 7), P.A. Mattei (ENS Cachan); R. El Hassan (Paris 6); Y. Jernite (Polytechnique); L. Bergé (Paris 1); C. Brunet (Paris 1); J. Kannala (Univ. of Olu, Finlande); A. Echenim (Univ. de Franche-Comté).

Conference and workshop organization

- 2010-... **Founder & organizer of the 12 editions of the conference StatLearn** (<http://statlearn.sfds.asso.fr>)
- 2022 **Co-organizer of the session "Artificial Intelligence" at the joint meeting of AMS-EMS-SMF, Grenoble**
- 2021 President of the organization committee of the 52ème Journées de Statistique of the SFDS, Nice, France
- 2014-2021 Chairman of the annual Working Group on Model-Based Clustering, University of Washington, USA
- 2013-2017 Organizer of the seminar of Statistics, Laboratoire MAP5, Université Paris 5
- 2011-2013 Organizer of the seminar "Statistical analysis of networks", Université Paris 1
- 2011 Co-organizer of the "journées d'Astro-Statistique", December 2011, Grenoble
- 2010 Organizer of the session "Classification", Journées MAS, September 2010, Bordeaux
- 2009 Organizer of the workshop "Statistics for image analysis", January 2009, Université Paris 1

Awards

- 2019-2024 **Chair in Artificial Intelligence of the Institut 3IA Côte d'Azur**
- 2017-2022 Chair of Excellence INRIA in Data Science, INRIA Sophia-Antipolis & UCA
- 2009-2022 Prime d'Encadrement Doctoral et de Recherche (PEDR), Univ. Paris 1, Paris 5 & UCA
- 2012 Simon Régnier Award, Société Francophone de Classification
- 2011 Chikio Hayashi Award, International Federation of Classification Societies
- 2010 Young Researcher Award, International Association for Statistical Computing
- 2006 Honorary mention prize, Indian Conference ICVGIP

Research grants

- 2020-2022 Grant "Analysis of medical publications with a AI-based software", Comité CARE, Min. de la Recherche (75k€)
- 2019-2021 Grant "Artificial intelligence and massive data", Idex Jedi, Université Côte d'Azur (180k€)
- 2018-2020 Grant "Exploring functional data", Idex Jedi, Université Côte d'Azur (15k€)
- 2017-2020 Grant "Co-clustering of textual data matrices", SATT Idflnnoy (200 k€)
- 2016-2018 Grant "Statistical analysis of networks with textual edges", SATT Idflnnoy (50 k€)
- 2016-2020 Grant "Model-based co-clustering of functional data", Fondation J. Hadamard (50 k€)
- 2013-2017 Grant "Statistical analysis of networks for digital humanities", ISC-PIF, CNRS (102 k€)
- 2012-2013 Grant "Statistical analysis of networks", Université Paris 1 (23 k€)
- 2011-2014 Grant "Anomaly detection in high-dimensional streams", Snecma (150 k€)
- 2008-2011 Grant "Statistical learning with complex data", Université Paris 1 (15 k€)
- 2008-2009 Grant "Cervical cancer detection from cytological images", Novacyt (10 k€)

Academic grants

- 2022-2027 PI of the project EFELIA Côte d'Azur (8 M€)
In response to the call for applications "Compétences et Métiers d'Avenir, phase 2 du plan IA"
- 2019-2024 PI for Université Côte d'Azur of the project "Institut 3IA Côte d'Azur" (19 M€)
In response to the call for applications "Phase 1 du plan national en Intelligence Artificielle"

Research topics

1. **Statistical learning in high dimensions:** supervised and unsupervised classification of high-dimensional data, intrinsic dimension estimation, variable selection in clustering and regression, visualization of high-dimensional data.
2. **Adaptive statistical learning:** robust classification (with uncertain labels), weakly-supervised classification, regression with evolutive populations, classification with unobserved classes.
3. **Statistical learning on complex data:** supervised and unsupervised classification of networks, clustering of functional data, classification of heterogeneous data.
4. **Deep latent variable models:** clustering, representation learning, recommender systems, matrix completion, graph neural networks
5. **Applications of Statistics & AI:** image analysis, bio-medical data, chemometrics, digital humanities, aeronautics.

Publications

Publication type	Quantity	Publication type	Quantity
Books	1	Editorials and discussions	6
Preprint	4	Invited conferences	18
Journal articles	52	Softwares	16
Book chapters	6	Patents	2

Books (1)

- [1] C. Bouveyron, G. Celeux, B. Murphy and A. Raftery, *Model-based Clustering and Classification for Data Science, with Applications in R*, in Series in Statistical and Probabilistic Mathematics, Cambridge University Press, 2019.

Preprints (4)

- [2] C. Bouveyron, M. Corneli & G. Marchello, *A Deep Dynamic Latent Block Model for the Co-clustering of Zero-Inflated Data Matrices*, Preprint HAL 03800210, Université Côte d'Azur, 2022.
- [3] R. Boutin, C. Bouveyron & P. Latouche, *Embedded Topics in the Stochastic Block Model*, Preprint HAL 03782528, Université Côte d'Azur, 2022.
- [4] C. Bouveyron, F. Precioso & F. Simões, *DeepWILD: Wildlife Identification, Localisation and estimation on camera trap videos using Deep learning*, Preprint HAL 03797530, Université Côte d'Azur, 2022
- [5] C. Bouveyron, M. Corneli, P. Latouche & D. Liang, *Clustering by Deep Latent Position Model with Graph Convolutional Network*, Preprint HAL 03629104, Université Côte d'Azur, 2022

Journal articles (52)

- [6] C. Bouveyron, M. Corneli, A. Fresse & G. Marchello, *Co-Clustering of Evolving Count Matrices in Pharmacovigilance with the Dynamic Latent Block Model*, Statistics and Computing, in press, 2022.
- [7] F. Simões, C. Bouveyron, D. Piga, D. Borel, S. Descombes, P. Gibelin, V. Paquis & J. Levrault, *Cardiac dyspnea risk zones in the South of France identified by geo-pollution trends study*, Nature Scientific Reports, in press, 2022.
- [8] D. Liang, M. Corneli, C. Bouveyron & P. Latouche, *DeepLTRS: A Deep Latent Recommender System based on User Ratings and Reviews*, Pattern Recognition Letters, in press, 2022.
- [9] M. Fop, P.-A. Mattei, C. Bouveyron & B. Murphy, *Unobserved classes and extra variables in high-dimensional discriminant analysis*, Advances in Data Analysis and Classification, in press, 2022.
- [10] C. Bouveyron, J. Jacques, A. Schmutz, F. Simoes & S. Bottini, *Co-Clustering of Multivariate Functional Data for the Analysis of Air Pollution in the South of France*, The Annals of Applied Statistics, in press, 2021.
- [11] A. Casa, C. Bouveyron, E. Erosheva & G. Menardi, *Co-clustering of time-dependent data via a shape invariant model*, Journal of Classification, in press, 2021.
- [12] N. Jouvin, C. Bouveyron & P. Latouche, *A Bayesian Fisher-EM algorithm for discriminative Gaussian subspace clustering*, Statistics and Computing, vol. 31, 44, 2021.
- [13] E. Côme, P. Latouche, N. Jouvin & C. Bouveyron, *Hierarchical clustering with discrete latent variable models and the integrated classification likelihood*, Advances in Data Analysis and Classification, in press, 2021.

- [14] D. Fraix-Burnet, C. Bouveyron & J. Moulta, *Unsupervised classification of SDSS galaxy spectra*, Astronomy and Astrophysics, vol. 649, A53, 2021.
- [15] N. Jouvin, P. Latouche, C. Bouveyron, G. Bataillon & A. Livartowski, *Clustering of count data through a mixture of multinomial PCA*, Computational Statistics, vol. 36, pp. 1-33, 2020.
- [16] C. Bouveyron, M. Corneli & P. Latouche, *Co-Clustering of ordinal data via latent continuous random variables and a classification EM algorithm*, Journal of Computational and Graphical Statistics, vol. 29(4), pp. 771-785, 2020.
- [17] C. Bouveyron, L. Cheze, J. Jacques, P. Martin & A. Schmutz, *Clustering multivariate functional data in group-specific functional subspaces*, Computational Statistics, vol. 35, pp. 1101-1131, 2020.
- [18] A. Saint-Dizier, J. Delon & C. Bouveyron, *A unified view on patch aggregation*, Journal of Mathematical Imaging and Vision, vol. 62, pp. 149-168, 2020.
- [19] L. Bergé, C. Bouveyron, M. Corneli & P. Latouche, *The Latent Topic Block Model for the Co-Clustering of Textual Interaction Data*, Journal of Mathematical Imaging and Vision, in press, 2019.
- [20] C. Bouveyron, P. Latouche & P.-A. Mattei, *Exact Dimensionality Selection for Bayesian PCA*, Scandinavian Journal of Statistics, vol. 47(1), pp. 196-211, 2019.
- [21] F. Orhac, P.-A. Mattei, C. Bouveyron & N. Ayache, *Class-specific Variable Selection in High-Dimensional Discriminant Analysis through Bayesian Sparsity*, Journal of Chemometrics, vol. 33(2), e3097, 2019.
- [22] C. Bouveyron, M. Corneli, P. Latouche & F. Rossi, *The dynamic stochastic topic block model for dynamic networks with textual edges*, Statistics and Computing, vol. 29, pp. 677-695, 2018.
- [23] C. Bouveyron, J. Delon & A. Houdard, *High-Dimensional Mixture Models for Unsupervised Image Denoising (HDMI)*, SIAM Journal on Imaging Sciences, vol. 11(4), pp. 2815-2846, 2018.
- [24] C. Bouveyron, P. Latouche & P.-A. Mattei, *Bayesian Variable Selection for Globally Sparse Probabilistic PCA*, Electronic Journal of Statistics, vol. 12(2), pp. 3036-3070, 2018.
- [25] J. Ulloa, T. Aubin, D. Llusia, C. Bouveyron & J. Sueur, *Estimating animal acoustic diversity in tropical environments using unsupervised multiresolution analysis*, Ecological Indicators, vol. 90, pp. 346-355, 2018.
- [26] C. Bouveyron, L. Bozzi, J. Jacques & F.-X. Jollois, *The Functional Latent Block Model for the Co-Clustering of Electricity Consumption Curves*, Journal of the Royal Statistical Society, Series C, vol. 67(4), pp. 897-915, 2018.
- [27] C. Bouveyron, P. Latouche & R. Zreik, *The Stochastic Topic Block Model for the Clustering of Networks with Textual Edges*, Statistics and Computing, vol. 28(1), pp. 11-31, 2018.
- [28] C. Bouveyron, G. Fouetillou, P. Latouche & D. Marié, *Présidentielle 2017 : l'analyse des tweets renseigne sur les recompositions politiques*, Statistique et Société, vol. 5(3), pp. 39-44, 2017.
- [29] C. Bouveyron, P. Latouche & R. Zreik, *The Dynamic Random Subgraph Model for the Clustering of Evolving Networks*, Computational Statistics, vol. 32(2), pp. 501-533, 2017.
- [30] C. Bouveyron, G. Hébrail, F.-X. Jollois & J.-M. Poggi, *Un DU d'Analyste Big Data en formation continue courte, au niveau L3*, Statistique et Enseignement, vol. 7 (1), pp. 127-134, 2016.
- [31] C. Bouveyron, J. Chiquet, P. Latouche & P.-A. Mattei, *Combining a Relaxed EM Algorithm with Occam's Razor for Bayesian Variable Selection in High-Dimensional Regression*, Journal of Multivariate Analysis, vol. 146, pp. 177-190, 2016.
- [32] C. Bouveyron, M. Fauvel & S. Girard, *Parsimonious Gaussian process models for the classification of hyperspectral remote sensing images*, IEEE Geoscience and Remote Sensing Letters, vol. 12, pp.2423-2427, 2015.
- [33] C. Bouveyron, E. Côme & J. Jacques, *The discriminative functional mixture model for the analysis of bike sharing systems*, The Annals of Applied Statistics, vol. 9 (4), pp. 1726-1760, 2015.
- [34] C. Bouveyron, P. Latouche & R. Zreik, *Classification automatique de réseaux dynamiques avec sous-graphes : étude du scandale Enron*, Journal de la Société Française de Statistique, vol. 156(3), pp. 166-191, 2015.
- [35] C. Bouveyron, S. Girard & M. Fauvel, *Kernel discriminant analysis and clustering with parsimonious Gaussian process models*, Statistics and Computing, vol. 25(6), pp. 1143-1162, 2015.
- [36] Y. Jernite, P. Latouche, C. Bouveyron, P. Rivera, L. Jegou & S. Lamassé, *The random subgraph model for the analysis of an ecclesiastical network in merovingian Gaul*, The Annals of Applied Statistics, vol. 8(1), pp. 377-405, 2014.
- [37] C. Bouveyron, *Adaptive mixture discriminant analysis for supervised learning with unobserved classes*, Journal of Classification, vol. 31(1), pp. 49-84, 2014.

- [38] C. Bouveyron & C. Brunet, *Model-based clustering of high-dimensional data: A review*, Computational Statistics and Data Analysis, vol. 71, pp. 52-78, 2014.
- [39] C. Bouveyron & J. Jacques, *Adaptive mixtures of regressions: Improving predictive inference when population has changed*, Communications in Statistics : Simulation and Computation, vol. 43(10), pp. 2570-2592, 2014.
- [40] C. Bouveyron & C. Brunet, *Discriminative variable selection for clustering with the sparse Fisher-EM algorithm*, Computational Statistics, vol. 29(3-4), pp. 489-513, 2014.
- [41] C. Bouveyron, *Probabilistic model-based discriminant analysis and clustering methods in Chemometrics*, Journal of Chemometrics, vol. 27(12), pp. 433-446, 2013.
- [42] A. Bellas, C. Bouveyron, M. Cottrell & J. Lacaille, *Model-based clustering of high-dimensional data streams with online mixture of probabilistic PCA*, Advances in Data Analysis and Classification, vol. 7(3), pp. 281-300, 2013.
- [43] C. Bouveyron & C. Brunet, *Theoretical and practical considerations on the convergence properties of the Fisher-EM algorithm*, Journal of Multivariate Analysis, vol. 109, pp. 29-41, 2012.
- [44] L. Bergé, C. Bouveyron & S. Girard, *HDclassif : an R Package for Model-Based Clustering and Discriminant Analysis of High-Dimensional Data*, Journal of Statistical Software, vol. 42(6), pp. 1-29, 2012.
- [45] C. Bouveyron & C. Brunet, *Probabilistic Fisher discriminant analysis : A robust and flexible alternative to Fisher discriminant analysis*, Neurocomputing, vol. 90 (1), pp. 12-22, 2012.
- [46] C. Bouveyron & C. Brunet, *Simultaneous model-based clustering and visualization in the Fisher discriminative subspace*, Statistics and Computing, vol. 22 (1), pp. 301-324, 2012.
- [47] C. Bouveyron & C. Brunet, *On the estimation of the latent discriminative subspace in the Fisher-EM algorithm*, Journal de la Société Française de Statistique, vol. 152 (3), pp. 98-115, 2011.
- [48] C. Bouveyron, P. Gaubert and J. Jacques, *Adaptive models in regression for modeling and understanding evolving populations*, Journal of Case Studies in Business, Industry and Government Statistics, vol. 4 (2), pp. 83-92, 2011.
- [49] C. Bouveyron, G. Celeux & S. Girard, *Intrinsic Dimension Estimation by Maximum Likelihood in Probabilistic PCA*, Pattern Recognition Letters, vol. 32 (14), pp. 1706-1713, 2011.
- [50] C. Bouveyron & J. Jacques, *Model-based Clustering of Time Series in Group-specific Functional Subspaces*, Advances in Data Analysis and Classification, vol. 5 (4), pp. 281-300, 2011.
- [51] C. Bouveyron, O. Devos, L. Duponchel, S. Girard, J. Jacques & C. Ruckebusch, *Gaussian mixture models for the classification of high-dimensional vibrational spectroscopy data*, Journal of Chemometrics, vol. 24 (11-12), pp. 719-727, 2010.
- [52] C. Bouveyron & J. Jacques, *Adaptive linear models for regression: improving prediction when population has changed*, Pattern Recognition Letters, vol. 31 (14), pp. 2237-2247, 2010.
- [53] C. Bouveyron & S. Girard, *Robust supervised classification with mixture models: learning from data with uncertain labels*, Pattern Recognition, vol. 42 (11), pp. 2649-2658, 2009.
- [54] C. Bouveyron & S. Girard, *Classification supervisée et non supervisée des données de grande dimension*, La revue Modulad, vol. 40, pp. 81-102, 2009.
- [55] C. Bouveyron, S. Girard & C. Schmid, *High-Dimensional Data Clustering*, Computational Statistics and Data Analysis, vol. 52 (1), pp. 502-519, 2007.
- [56] C. Bouveyron, S. Girard & C. Schmid, *High Dimensional Discriminant Analysis*, Communications in Statistics: Theory and Methods, vol. 36 (14), pp. 2607-2623, 2007.
- [57] C. Bouveyron, S. Girard & C. Schmid, *Class-Specific Subspace Discriminant Analysis for High-Dimensional Data*, In Lecture Notes in Computer Science n.3940, pp. 139-150, Springer-Verlag, 2006.

Book chapters (6)

- [58] C. Bouveyron, *Statistical learning in high dimensions and application to oncological diagnosis by radiomics*, in C. Villani, B. Nordlinger & D. Rus, Healthcare and Artificial Intelligence, Springer, in press, 2020.
- [59] C. Bouveyron, *Apprentissage statistique en grande dimension et application au diagnostic oncologique par radiomique*, in C. Villani & B. Nordlinger, Santé et intelligence artificielle, CNRS Editions, pp. 179-189, 2018.
- [60] C. Bouveyron, C. Ducruet, P. Latouche & R. Zreik, *Cluster dynamics in the collapsing Soviet shipping network*, in Advances in Shipping Data Analysis and Modeling, Routledge, 2018.

- [61] C. Bouveyron, *Model-based clustering of high-dimensional data in Astrophysics*, in *Statistics for Astrophysics: Clustering and Classification*, EAS Publications Series, EDP Sciences, vol. 77, pp. 91-119, 2016
- [62] C. Bouveyron, C. Ducruet, P. Latouche & R. Zreik, *Cluster Identification in Maritime Flows with Stochastic Methods*, in *Maritime Networks: Spatial Structures and Time Dynamics*, Routledge, 2015.
- [63] F. Beninel, C. Biernacki, C. Bouveyron, J. Jacques & A. Lourme, *Parametric link models for knowledge transfer in statistical learning*, in *Knowledge Transfer : Practices, Types and Challenges*, Ed. Dragan Ilic, Nova Publishers, 2012.

Editorials and discussions (6)

- [64] C. Bouveyron, G. Fouetillou, P. Latouche & D. Marié, *Elections 2017 : une réorganisation politique du web social ?*, *The Conversation*, juin 2017.
- [65] C. Bouveyron & P. Latouche, *Des réseaux, des textes et de la Statistique*, *La lettre de l'INSMI, CNRS*, édition de décembre, 2016.
- [66] C. Bouveyron, *Apprentissage statistique en grande dimension : enjeux et avancées récentes*, *Journal de la Société Française de Statistique*, vol. 155 (2), pp. 36-37, 2014.
- [67] C. Bouveyron, *Discussion on the paper by J. Fan, Y. Liao and M. Mincheva*, *Journal of the Royal Statistical Society, Serie B*, 2013.
- [68] C. Bouveyron, *Discussion on the paper by C. Hennig and T. Liao*, *Journal of the Royal Statistical Society, Serie C*, 2013.
- [69] C. Bouveyron, S. Girard & F. Forbes, *Nouveaux défis en apprentissage statistique*, *Journal de la Société Française de Statistique*, vol. 152 (3), pp. 1-2, 2011.

Invited communications in conferences (18)

- [70] C. Bouveyron, *Statistical Learning with Dynamic Interaction Data for Public Health*, 17th Conference of the International Federation of Classification Societies, Porto, Portugal, July 2022.
- [71] C. Bouveyron, *Statistical Learning with Relational Data for Public Health*, 1st French-German Machine Learning Symposium, Munich, Germany (Virtual), May 2021.
- [72] C. Bouveyron, *Apprentissage statistique sur données complexes : des réseaux de communication à la médecine computationnelle*, 1ère édition de journées "l'Académie en Région", Académie des Sciences, Nice, France, June 2019.
- [73] C. Bouveyron, *Recent advances in model-based clustering of functional data*, 51ème Journées de Statistique de la Société Française de Statistique, Nancy, France, June 2019.
- [74] C. Bouveyron, *The stochastic topic block model*, President's Invited Address, Annual Conference of The American Classification Society, New York, June 2018.
- [75] C. Bouveyron, *Bayesian sparsity for statistical learning in high dimensions*, *Chimiométrie 2018*, Paris, January 2018.
- [76] C. Bouveyron, *Model-based coclustering of functional data*, Annual Conference of the Italian Statistical Society, Florence, Italy, June 2016.
- [77] C. Bouveyron, *The discriminative functional mixture model for the analysis of bike sharing systems*, 22nd International Conference on Computational Statistics, Oviedo, Spain, August 2016.
- [78] C. Bouveyron, *Model-based clustering of functional data: application to the analysis of bike sharing systems*, 12th International Conference on Operation Research, Havana, Cuba, March 2016.
- [79] C. Bouveyron, *Kernel discriminant analysis with parsimonious Gaussian process models*, 8th International Conference of the ERCIM, WG on Computational and Methodological Statistics, London, UK, December 2015.
- [80] C. Bouveyron, *Discriminative clustering of high-dimensional data*, Workshop on Model-Based Clustering and Classification, Catania, Italy, September 2014.
- [81] C. Bouveyron, *Discriminative variable selection for clustering*, 6th International Conference of the ERCIM, WG on Computational and Methodological Statistics, London, UK, December 2013.
- [82] C. Bouveyron, *The random subgraph model for the analysis of an ecclesiastical network in merovingian Gaul*, 20th Summer Working Group on Model-Based Clustering of the Department of Statistics of the University of Washington, Bologna, Italy, July 2013.
- [83] C. Bouveyron, *Clustering discriminatif et parcimonieux de données de grande dimension*, Conférence du prix Simon Régnier, 19ème rencontres de la Société Francophone de Classification, Marseille, 2012.

- [84] C. Bouveyron, *Parsimonious and sparse Gaussian models for high-dimensional clustering*, International Classification Conference 2011, St Andrews, UK, July 2011.
- [85] C. Bouveyron, *Model-based clustering of high-dimensional data : an overview and some recent advances*, 17th Summer Working Group on Model-Based Clustering of the Department of Statistics of the University of Washington, Grenoble, France, July 2010.
- [86] C. Bouveyron, *Classification of complex data with model-based techniques*, 1st joint meeting of the Statistical Society of Canada and the Société Française de Statistique, Ottawa, Canada, 2008.
- [87] C. Bouveyron, *An overview on high-dimensional data classification with model-based techniques*, 8th International Conference on Operations Research, Havana, Cuba, 2008.

Patents (2)

- [88] L. Bergé, C. Bouveyron, M. Corneli & P. Latouche, *Method for co-clustering senders and receivers based on text or image data files*, EU patent, 2018.
- [89] C. Bouveyron & P. Latouche, *Method for clustering nodes of a textual network taking into account textual content*, US patent, 2017.