Julien Chiquet

Curriculum Vitæ

Last update: 16 août 2021

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Curriculum Vitæ

Julien Chiquet

Born July 26, 1980
French citizen
Married, father of 3 children

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Researcher in Statistics, Habilitation

MIA-NUMM Paris
UMR 518 AgroParistech/INRA
16, rue Claude Bernard
75231 Paris Cedex 05, France

Brief summary of activities

Research	Statistical and Learning, Life Science, Reproducible Research
themes	Sparse Methods and Regularization · Multivariate Analysis · Latent variable models · Optimization and algorithmes · Ecology, Environment · Omics data
production	32 journal papers, 5 book chapters, $\geq$ 15 maintained `R`/`C++` packages.
students	1 ongoing PhD, 9 alumni
Teaching	Statistics, Machine learning, Computational Science $\approx$ 1730 hours for undergraduate and Master students in departments of applied mathematics, statistics, biology and computer science
Responsabilities	Co-head of UMR MIA 518. Chief editor of Computo

Professional experience

since 2020	Part-time lecturer X – École Polytechnique
since 2020	Senior Researcher INRAE NUMM – Department Mathematics, Informatics and AI MIA Paris, UMR 518 INRAE/AgroParisTech
2016–2019	First class Researcher INRA Department of Applied Mathematics and Informatics MIA Paris, UMR 518 INRAE/AgroParisTech
2008 – 2015	Research and Teaching Assistant, then Assistant Professor (26^{e} section) UMR 8071 Statistique & Génome, Université d'Évry
2003 – 2007	PhD student French Nuclear Agency (CEA) Saclay

Education

2015	Habilitation in Mathematics
Title	*Contributions to sparse methods for complex data analysis*
Reviewers	A. d'Aspremont (ENS), A. Dalalyan (ENSAE), J.-P. Vert (Mines ParisTech)
2003–2007	PhD in Applied Mathematics
Title	*Modeling and Estimating degradation processes with application in reliability* French Nuclear Agency (CEA), Saclay
Supervisor	Nikolaos Limnios (Université de Technologie de Compiègne)
2003	M.S. in Computational science and statistical learning, Université de Technologie de Compiègne
2003	Computer Engineering school, Université de Technologie de Compiègne

Scientific activities

Participation to research grants

On going Projects

2020–2023	G2WAS – Grape Genes for WAter Scarcity
Partners	AgroParisTech/INRA, AGAP, LEPSE (INRA)
Support	French National Research Agency (ANR)
Involvement	Team leader, 60,000 € for MIA-Paris

2019–2022	SingleStatOmics – http://anr-singlestatomics.pages.math.cnrs.fr
Partners	University of Lyon 1, Mines ParisTech, ENS Lyon, AgroParisTech/INRA
Support	French National Research Agency (ANR)
Involvement	12 month, **co-PI, Team leader**, 210,000 € for MIA-Paris

2019–2022	EcoNet – Advanced statistical modelling of ecological networks
Partners	Sorbonne, Lyon 1 and Lille Universities, AgroParisTech/INRA, ISEM, IEES
Support	French National Research Agency (ANR)
Involvement	8 months, collaborator, 136,000 € for MIA-Paris

2018–2021	Next-Gen. Biomonitoring of change in ecosystems structure and function
Leader	D. Bohan (DR Inra, Dijon)
Partners	AgroParisTech, INRA (Dijon, Bordeaux, Rennes, Réunion), Imperial College, Cirad
Support	French National Research Agency (ANR)
Involvement	4.8 months, collaborator, 81,000 € for MIA-Paris

Past (selection)

2018–2019	KineTicks – Network and modelling analyses to describe the dynamics of Ixodes ricinus microbiome and its influence in pathogen evolution
Partners	INRA (BIPAR, MaIAGE, MIAP)
Support	Metaprogramm MEM (Meta-omics and microbial ecosystems, INRA)

2016–2018	LIONS – Large-scale Integrative approach to unravel the complex relationships between differentiatiON and tumorigenesiS
Partners	IGMM/IBC, MAP5, iSSB Évry, Institut Curie, University of York
Support	Plan Cancer 2015 Inserm

2016–2018	LearnBioControl : Learning ecological networks from metabarcoding data : application to biological control
Partners	INRA/UMR BIoGeCo, Imperial College, AgroParisTech/INRA
Support	MP MEM (Inra)

2015–2018	Hydrogen – Comparative Metagenomic for Measuring Biodiversity
Partners	AgroParisTech/INRA, CEA-CNS-LABIS, INRIA Rennes/Genscale
Support	French National Research Agency (ANR)

2012–2016	ABS4NGS – Algorithmic, Bioinformatic and Software solutions for the analysis of Next Generation Sequencing data
Partners	Institut Curie, Mines ParisTech, University of Lyon 1, AgroParisTech/INRA,
Support	Investissement d'avenir

2014–2016	AREA – Analyse de la Réponse Evolutive des Arbres forestiers tropicaux dans l'environnement, approche génomique et métabolomique
Partners	AgroParisTech/INRA, UMR EcoFoG, UMR 8638 (CNRS/P5)
Support	Défi CNRS « Enviromics »

2011–2015	Ploid-Ploid wheat – Unraveling bases of polyploidy and aneuploidy responses in flowering plants, using the wheat ploid model
Partners	INRA (Rennes, Versailles, Grignon), Génoscope, CNRS
Support	French National Research Agency (ANR)

Research enhancement

since 2020 | Co-Head of UMR MIA 518 ; Team leader of team "SOLsTIS" in 2020
UMR 518 Université Paris-Saclay – AgroParisTech – INRAE
Web | https://www6.inrae.fr/mia-paris

Current workgroups

since 2017 | Workgroup State of the R (funding ≈ 5000€/year)
Purpose | Group of researchers and engineers meeting to deepen their know-how, improve the dissemination of their methods and exchange around the latest innovations of R
Format | An annual bootcamp (1 week) + a half-day monthly meeting with 20/30 people
Involvement | **Group leader**
Web | http://stateofther.github.io

since 2009 | INRA methodological workgroup NetBio (funding ≈ 5000€/year)
Purpose | This group was originally meant to evaluate the performance of the reconstruction methods for networks in the framework of molecular biology. It broadened its activities to every network analyses in biology.
Format | A daylong annual meeting with 50 people
Involvement | **Co-leader since 2012**
Web | carlit.toulouse.inra.fr/wikiz/index.php/Inférence_de_réseaux_-_réseau_MIA

Scientific events

Conference | Organizing committee – Leader
RencontresR'21 | Provide a national forum for the sharing of ideas within the R community. web page
SMPGD | Steering committee since 2019. Annual meeting dedicated to statistical methods for post genomic data analysis. web page
SatRDay'19 | SatRDays are community-led, regional conferences with international speakers to support collaboration, networking and innovation in the R community. web page

Conference | Scientific committees, Organizing committee
JDS 2020, 2021, EcoStat 2021, Rencontres R'18, StatLearn'14, JFRB'14, IWAP 2008, MBN 2007, ...

Lecturer | Research Schools and Tutorials
StatXP'19-20 | Life-course epidemiology and Exposome, Imperial College – web page
Surf64'17-18 | Advanced OMIC Profiling and Integration, Anglet, London – web page
SPS'16 | From gene expression to genomic network, Paris-Saclay – web page
Angers'16 | Bioinformatic Summer School in Angers – web page
BigOptim'15 | Large-Scale Convex optimization – web page

Editorial activities

Responsabilities
since 2021 | Chief Editor of *Computo*
since 2019 | Associate Editor of the *Journal of Computational and Graphical Statistics*
2018 – 2021 | Leader of the publication unit of the French Statistical Society : mission to assist in the renewal of the journals of the society

Reviewer | Paper reports
Journal | JMLR, JSS, JRSS-B, JRSS-C, Scandinavian Jour. Stat., Biometrics, Biometxrika, Bioinformatics, EJS, CSDA, Plos Comp. Bio., Inter. Jour. of Biostat., IEEE/ACM Transactions on Comp. Bio. and Bioinf., SAGMB, BMC Medical Research Methodology, EURASIP Journal on Bioinformatics and Systems Biology, ESAIM Prob. and Stat., ...
Conference | NIPS 2012–2017, ICML 2015, 2018, ...

Scientific committees

Councils

since 2020	Member of the Steering Committee of Digit-Bio INRAE Metaprogramme
since 2020	Nominated member of the Scientific Council of the INRAE Animal Genetics division
2018–2021	Elected member of the Council of the French Statistical Society
2016–2020	Elected member of the Scientific Council of the INRAE Math-Info division

Board of recruitment

Assistant Professor	2021 : Paris 1 (26e) ; 2020 : Nancy (26e) ; 2019 : Évry (26e) ; 2016 : Paris Sud (64-65e) ; 2015 : Paris Sud (87e) ; 2013 : Paris 5 (26e) ; 2012 : Rouen (26e) ; 2011 : Picardie (87e) · Paris Sud (67e) · Évry (26e) ; 2010 : Évry (26e)
INRAE	2018 : INRA (4 Researcher), 2012 : INRA (4 Research Engineer)

PhD reviewing

2021	Aude Sportisse ; Member : Gabriel Frisch
2020	Yaroslav Averyanov ; Member : Vincent Prost, Nicolas Jouvin
2019	Florian Privé, Arnaud Cougoul, Vivien Goepp ; Perrine Soret Member : Clémence Karmann, Beyrem Khalfaoui
2018	May Taha
2017	Thomas Dias-Alvès ; Member : Pierre-Alexandre Mattéi
2016	Samuel Balmand, Quentin Grimonprez, Rawya Zreik ; Member : Niels Ternes

PhD follow-up

2021	Lucas Etourneau (IMAG Grenoble), Océane Cassan (BPMP Montpellier), Valentin Costes (INRAE Jouy-en-Josas)
2020	Quentin Bertrand (INRIA Paris-Saclay), Océane Cassan (BPMP Montpellier), Valentin Costes (INRAE Jouy-en-Josas), Gabriel Frisch (UTC), Aude Sportisse (CMAP/LPSM)
2019	Charlotte Brault (Inra Montpellier), Gabriel Frisch (UTC)
2018	Arnaud Cougoul (Inra Theix)
2017	May Taha (IGMM Montpellier)
2016	Maximilien Grandclaudon (Institut Curie), Arnaud Cougoul (Inra Theix), May Taha (IGMM Montpellier)
2014	Mélina Gallopin (Laboratoire de mathématiques d'Orsay)

Students

PhD and Post-doc – Alumni

2019 – 2020 | Claire Gayral

PhD	*Single-cell data integration*
Supervision	50% with F. Picard DR CNRS, Lyon

since 2017 | Martina Sundqvist

PhD	*Multi-omic data integration for new classification in triple-negative breast cancer*
Supervision	50% with T. Dubois DR, Institut Curie and G. Rigaill, CR, INRA

since 2017 | Audrey Hulot

PhD	*Analyse de données-omiques : clustering et inférence de réseaux*
Supervision	25% with F. Jaffrezic, DR, Inra (50%) ; H.-J. Garchon, PUPH, Inserm (25%)

since 2016 | Timothée Tabouy

PhD	*Modeling and inferring sampling design in probabilistic random network models*
Supervision	50% with P. Barbillon, Assoc. Prof., AgroParisTech

since 2016 | Marie Perrot-Dockes

PhD	*Regularization tools for multivariate analysis : application to multi-omics*
Supervision	50% with Céline Lévy-Leduc, Prof., AgroParisTech

2013-2016 | Trung Ha

PhD	*Statistical learning and multivariate analysis for robust regulatory network inference*
Supervision	25% with M.-L. Martin, DR INRA/URGV and G. Rigaill, Assoc. Prof., Évry

2015	David Baker
Post-doc	*Regularization methods for genomic selection*
Supervision	50% with Tristan Mary-Huard, CR INRA/Moulon
2011-2014	Smahane Chalabi
PhD	*Caractérisation de la reprogrammation de l'expression des gènes induite par l'allopolyploïdie chez le blé*
Supervision	25% with Boulos Chaloub, DR INRA/URGV, Évry
2012-2013	Édith Le Floch
Post-doc	*Analysis of NGS data to characterize polyploidy*
Supervision	50% with Carène Rizzon, Assoc. Prof., Évry
2011-2013	Jonathan Plassais
PhD	*Développement méthodologique pour la méta-analyse appliquée à la caractérisation de signatures chez les patients atteints de maladie auto-immune*
Supervision	50% with Christophe Ambroise, Prof., Évry
Support	CIFRE, société TcLand www.tcland-expression.com
2009–2012	Camille Charbonnier
PhD	*Inference of gene regulatory networks from non-iid transcriptomic data*
Supervision	50% with Christophe Ambroise, Prof., Évry

Masters – Alumni

16 MSc. Students (co-)supervized.

Teaching activities

Approximately 1730 hours of teachings given various schools and universities : Université d'Évry, AgroParisTech, École Nationale Supérieure d'Informatique pour l'Industrie et l'Entreprise (ENSIIE), École Nationale de la Statistique et de l'Analyse de l'Information (ENSAI), Université de Technologie de Compiègne, Université Paris-Sud, Université Paris Dauphine, X – École Polytechnique.

I also participate in continuing education courses in data science and machine learning for software engineers and developers in private companies (X-Executive Education, Dauphine Executive Education, HEC Data Science Certificate).

2020-22	Statistics in Action with R
Msc	Probabilistic models, data analysis, R programming
2020-21	Data Analysis and Unsupervised Learning
Msc	Data and Graph Clustering, Mixture model, Stochastic Block Model
web	https://github.com/jchiquet/CourseUnsupervisedLearningX
2018-19	An introduction to graph analysis and modeling (36h course/practicals)
Msc	Descriptive Analysis of networks, Stochastic Block Model, Graphical Lasso
web	https://github.com/jchiquet/CourseStatNetwork
2015-18	Introduction regularization for regression (154h course/practicals)
Msc	Ridge, Lasso, variable selection, model selection
web	https://github.com/jchiquet/CourseRegLinearRegression
2017	A short introduction to Convex Optimization (12h course)
Msc	(sub)-gradient methods, Newton method, Proximal methods
2010,15,16	Linear model and extensions (222h course/practicals)
undergraduate	Fisher test, ANOVA, Linear regression, generalized linear model, Smoothing splines
MSc	Mixed and random effects model, repeated-measurements, application in agronomy
2012, 2015	R programming and statistics (60h course/practicals)
undergraduate	Data and control structures, Hypothesis testing, Linear model
web	http://julien.cremeriefamily.info/teachings_L3BI_ISV51.html
2008, 2015	Introduction to matrix algebra and data analysis (18h course, 38h practicals)
undergraduate	Linear system, Matrix factorization, Spectral decomposition, PCA

2010,12,15 *undergraduate*	Short Project in Mathematics and Statistics (110h course/practicals) Penalized regression, Numerical analysis, Simulation, Optimization
2008–11 *undergraduate*	Basic Mathematics (148h practicals) Continuity, Differentiation, Integration, Taylor Series, ODE, mechanics, `Maple`
2005–11 *undergraduate*	Probability and Statistic (39h course, 339h practicals) Random variables, Random Vectors, Independence, Conditioning, Convergence ; Inference, Hypothesis Tesing, Confidence Intervals
2008–10 *undergraduate*	Mathematical Models for Biology (9h course, 35h practicals) dynamic population models, Lokta-Volterra ; sequence analysis, Markov models.
2007–09 *MSc*	Numerical methods for EDP (66h practicals) Euler, Runge-Kutta and Newton methods, `Scilab`
2003,07 *MSc*	Numerical analysis (58h practicals) Linear system, Least squares, Numerical integration, Interpolation, ODE
2004,06 *MSc*	Operational Research (50h practicals) Graphs, Combinatorial optimization, Algorithm, Complexity
2005 *postgraduate*	Introduction to LaTeX (12h course/practicals) Typography basics, Typesetting math, Bibliography, Index, Style-sheet

Scientific productions

Papers

Preprint

[PP1] B. Bodinier, S. Filippi, T. H. Nost, J. Chiquet, and M. Chadeau-Hyam, *Automated calibration for stability selection in penalised regression and graphical models : a multi-omics network application exploring the molecular response to tobacco smoking*, submitted.

[PP2] C. Pauvert, T. Fort, A. Calonnec, J. Faivre-d'Arcier, E. Chancerel, M. Massot, J. Chiquet, S. Robin, D. A. Bohan, J. Vallance, and C. Vacher, *Microbial association networks give relevant insights into plant pathobiomes*, 2020, doi :10.1101/2020.02.21.958033.

[PP3] P. Barbillon, J. Chiquet, and T. Tabouy, *missSBM : An R Package for Handling Missing Values in the Stochastic Block Model*, to appear.

[PP4] J. Chiquet, M.-J. Cros, M. Mariadassou, N. Peyrard, and S. Robin, *Le modèle poisson log-normal : un cadre générique d'analyse des distributions jointe d'abondance*, to appear.

[PP5] M. Sundqvist, J. Chiquet, and G. Rigaill, *Adjusting the adjusted rand index - a multinomial story*, in revision.

Journal papers

[JP1] C. Brault, A. Doligez, L. Le Cunff, A. Coupel-Ledru, T. Simonneau, J. Chiquet, P. This, and T. Flutre, *Harnessing multivariate, penalized regression methods for genomic prediction and QTL detection to cope with climate change affecting grapevine*, 2021, doi :g3journal/jkab248.

[JP2] M. Champion, J. Chiquet, P. Neuvial, M. Elati, F. Radvanyi, and E. Birmelé, *Identification of deregulation mechanisms specific to cancer subtypes*, Journal of Bioinformatics and Computational Biology, 19(01) :p. 2140003, 2021, doi :10.1142/S0219720021400035.

[JP3] J. Chiquet, M. Mariadassou, and S. Robin, *The Poisson-Lognormal Model as a Versatile Framework for the Joint Analysis of Species Abundances*, Frontiers in Ecology and Evolution, 9 :p. 188, 2021, doi :10.3389/fevo.2021.588292.

[JP4] B. Facon, A. Hafsi, M. C. de la Masselière, S. Robin, F. Massol, M. Dubart, J. Chiquet, E. Frago, F. Chiroleu, P.-F. Duyck, and V. Ravigné, *Joint species distributions reveal the combined effects of host plants, abiotic factors and species competition as drivers of species abundances in fruit flies*, Ecological Letters, 2021, doi :10.1111/ele.13825.

[JP5] E. Lejal, J. Chiquet, J. Aubert, S. Robin, A. Estrada-Peña, O. Rue, C. Midoux, M. Mariadassou, X. Bailly, A. Cougoul, P. Gasqui, J. Cosson, K. Chalvet-Monfray, M. Vayssier-Taussat, and T. Pollet, *Temporal patterns in Ixodes ricinus microbial communities : an insight into tick-borne microbe interactions*, Microbiome, 9(153), 2021, doi :10.1186/s40168-021-01051-8.

[JP6] F. Guinot, M. Szafranski, J. Chiquet, A. Zancarini, C. Le Signor, C. Mougel, and C. Ambroise, *Fast Computation of Genome-Metagenome interaction effects*, Algorithms for Molecular Biology, 2020, doi :10.1186/s13015-020-00173-2.

[JP7] A. Hulot, J. Chiquet, F. Jaffrezic, and G. Rigaill, *Fast tree aggregation for consensus hierarchical clustering*, BMC Bioinformatics, 2020, doi :10.1186/s12859-020-3453-6.

[JP8] J. Chiquet, S. Robin, and M. Mariadassou, *Variational inference for sparse network reconstruction from count data*, in K. Chaudhuri and R. Salakhutdinov, eds., Proceedings of the 36th International Conference on Machine Learning, vol. 97 of *Proceedings of Machine Learning Research*, pp. 1162–1171, PMLR, Long Beach, California, USA, 2019.

[JP9] M. Grandclaudon, M. Perrot-Dockès, C. Trichot, O. Mostafa-Abouzid, W. Abou-Jaoudé, F. Berger, P. Hupé, D. Thieffry, L. Sansonnet, J. Chiquet, C. Levy-Leduc, and V. Soumelis, *A Quantitative Multivariate Model of Human Dendritic Cell-T Helper Cell Communication*, Cell, 2019, doi :10.2139/ssrn.3353217.

[JP10] T. Tabouy, P. Barbillon, and J. Chiquet, *Variational inference for stochastic block models from sampled data*, Journal of the American Statistical Association, 0(ja) :pp. 1–20, 2019, doi :10.1080/01621459.2018.1562934.

[JP11] J. Chiquet, M. Mariadassou, and S. Robin, *Variational inference for probabilistic poisson pca*, Ann. Appl. Statist., 12(4) :pp. 2674–2698, 2018, doi :10.1214/18-AOAS1177.

[JP12] M. Perrot, C. Lévy-Leduc, J. Chiquet, L. Sansonnet, M. Brégère, M.-P. Étienne, S. Robin, and G. Genta-Gouve, *A multivariate variable selection approach for analyzing lc-ms metabolomics data*, SAGMB, 2018, doi :10.1515/sagmb-2017-0077.

[JP13] M. Perrot, C. Lévy-Leduc, L. Sansonnet, and J. Chiquet, *Variable selection in multivariate linear models with high-dimensional covariance matrix estimation*, J. Multivar. Anal., 166 :pp. 78–97, 2018, doi :10.1016/j.jmva.2018.02.006.

[JP14] V. Brault, J. Chiquet, and C. Lévy-Leduc, *Efficient block boundaries estimation in block-wise constant matrices : An application to hic data*, Elec. J. Statist., 11(1) :pp. 1570–1599, 2017, doi : 10.1214/17-EJS1270.

[JP15] J. Chiquet, P. Gutierrez, and G. Rigaill, *Fast tree inference with weighted fusion penalties*, Journal of Computational and Graphical Statistics, pp. 205–216, 2017, doi :10.1080/10618600.2015.1096789.

[JP16] Y. Grandvalet, J. Chiquet, and C. Ambroise, *Sparsity by worst-case penalties*, 2017.

[JP17] J. Chiquet, Y. Grandvalet, and G. Rigaill, *On coding effects in regularized categorical regression*, Statistical Modelling, (3) :pp. 228–237, 2016, doi :10.1177/1471082X16644998.

[JP18] J. Chiquet, T. Mary-Huard, and S. Robin, *Structured regularization for conditional Gaussian graphical models*, Statistics and Computing, (3) :pp. 789–804, 2016, doi :10.1007/s11222-016-9654-1.

[JP19] P. Latouche, P.-A. Mattei, C. Bouveyron, and J. Chiquet, *Combining a relaxed EM algorithm with Occam's razor for Bayesian variable selection in high-dimensional regression*, Journal of Multivariate Analysis, 2016, doi :10.1016/j.jmva.2015.09.004.

[JP20] C. Vacher, A. Tamaddoni-Nezhad, S. Kamenova, N. Peyrard, Y. Moalic, R. Sabbadin, L. Schwaller, J. Chiquet, M. A. Smith, J. Vallance *et al.*, *Learning ecological networks from next-generation sequencing data*, in Advances in Ecological Research, vol. 54, pp. 1–39, Elsevier, 2016, doi :10.1016/bs.aecr.2015.10.004.

[JP21] T. Picchetti, J. Chiquet, M. Elati, P. Neuvial, R. Nicolle, and E. Birmelé, *A model for gene deregulation detection using expression data*, BMC Systems Biology, 2015, doi :10.1186/1752-0509-9-S6-S6.

[JP22] B. Chaloub, F. Denoeud, S. Liu, S. Parkin, H. Tang, W. X., J. Chiquet, and 76 more, *Early allopolyploid evolution in the post-neolithic Brassica napus oilseed genome*, Science, (6199), 2014, doi :10.1126/science.1253435.

[JP23] H. Chelaifa, V. Chagué, S. Chalabi, I. Mestiri, D. Arnaud, D. Deffains, Y. Lu, H. Belcram, V. Huteau, J. Chiquet, O. Coriton, J. Just, J. Jahier, and B. Chalhoub, *Prevalence of gene expression additivity in genetically stable wheat allohexaploids*, New Phytologist, 197(3) :pp. 730–736, 2013, doi :10.1111/nph.12108/full.

[JP24] J. Chiquet, Y. Grandvalet, and C. Charbonnier, *Sparsity in sign-coherent groups of variables via the cooperative-lasso*, The Annals of Applied Statistics, 6(2) :pp. 795–830, 2012, doi :10.1214/11-AOAS520.

[JP25] J. Chiquet, Y. Grandvalet, and C. Ambroise, *Inferring multiple graphical models*, Statistics and Computing, 21(4) :pp. 537–553, 2011, doi :10.1007/s11222-010-9191-2.

[JP26] C. Charbonnier, J. Chiquet, and C. Ambroise, *Weighted-lasso for structured network inference from time course data*, Statistical Applications in Genomics and Molecular Biology, 9, 2010, doi : 1544-6115.1519.

[JP27] C. Ambroise, J. Chiquet, and C. Matias, *Inferring sparse Gaussian graphical models with latent structure*, Electronic Journal of Statistics, 3 :pp. 205–238, 2009, doi :10.1214/08-EJS314.

[JP28] J. Chiquet, N. Limnios, and M. Eid, *Piecewise deterministic Markov processes applied to fatigue crack growth modelling*, Journal of statistical planning and inference, 139(5) :pp. 1657–1667, 2009, doi :10.1016/j.jspi.2008.05.034.

[JP29] J. Chiquet, A. Smith, G. Grasseau, C. Matias, and C. Ambroise, *SIMoNe : Statistical Inference for MOdular NEtworks*, Bioinformatics, 25(3) :pp. 417–418, 2009, doi :10.1093/bioinformatics/btn637.

[JP30] J. Chiquet and N. Limnios, *A method to compute the transition function of a piecewise deterministic Markov process*, Statistics & Probability Letters, 78(12) :pp. 1397–1403, 2008, doi :10.1016/j.spl.2007.12.016.

[JP31] J. Chiquet, N. Limnios, and M. Eid, *Modelling and estimating stochastic dynamical systems with Markovian switching*, Reliability Engineering System Safety, 93(12) :pp. 1801–1808, 2008, doi : 10.1016/j.ress.2008.03.016.

[JP32] J. Chiquet and N. Limnios, *Estimating stochastic dynamical systems driven by a continuous-time jump Markov process*, Methodology and Computing in Applied Probability, 8 :pp. 431–447, 2006, URL http://www.springerlink.com/content/e8736480p2027113/.

Book chapters

[BC1] J. Chiquet, R. Rigaill, and M. Sundqvist, *A Multiattribute Gaussian Graphical Model for Inferring Multiscale Regulatory Networks : An Application in Breast Cancer*, pp. 143–160, Springer New York, 2019, doi :10.1007/978-1-4939-8882-2_6, URL https://doi.org/10.1007/978-1-4939-8882-2_6.

[BC2] M. Jeanmoungin, C. Charbonnier, M. Guedj, and J. Chiquet, *Probabilistic graphical models dedicated to applications in genetics, genomics and postgenomics*, chap. Network inference in breast cancer with Gaussian graphical models and extensions, 2014, URL http://ukcatalogue.oup.com/product/9780198709022.do.

[BC3] J. Chiquet and N. Limnios, *Stochastic Reliability and Maintenance Modeling*, vol. 9 of *Springer Series in Reliability Engineering*, chap. Dynamical systems with semi-markovian perturbations and their use in structural reliability, Springer, 2013, URL http://www.springer.com/engineering/production+engineering/book/978-1-4471-4970-5.

[BC4] J. Chiquet and N. Limnios, *Mathematical methods in survival analysis, reliability and quality of life*, chap. Reliability of stochastic dynamical systems applied to fatigue crack growth modelling, Wiley/ISTE, 2008, URL http://eu.wiley.com/WileyCDA/WileyTitle/productCd-1848210108,subjectCd-ST80.html.

Thesis

[TS1] J. Chiquet, *Contributions to sparse methods for complex data analysis*, Habilitation thesis, Université d'Évry Val-d'Essonne, 2015.

[TS2] J. Chiquet, *Modélisation et estimation des processus de dégradation avec application en fiabilité des structures*, Ph.D. thesis, Université de Technologie de Compiègne, 2007.

[TS3] J. Chiquet, *Estimation des températures journalières à l'aide de techniques markoviennes*, Master's thesis, Université de Technologie de Compiègne, 2003.

Talks

Contributed talks (international)

[CI1] M. Champion, J. Chiquet, P. Neuvial, M. Elati, F. Radvanyi, and E. Birmel\'e, *Identification of deregulated transcription factors involved in specific bladder cancer subtypes*, in Proceedings of the 12th International Conference on Bioinformatics and Computational Biology (Bicob)), vol. 70 of *EPiC Series in Computing*, pp. 1–10, 2020, doi :10.29007/v7qj, URL https://easychair.org/publications/paper/PX7P.

[CI2] J. Chiquet, M. Mariadassou, and S. Robin, *Plnmodels : a collection of models for multivariate analysis in microbial ecology*, in Microbiome COSI, ISMB/ECCB, 2019.

[CI3] C. Brault, M. Perrot-Dockès, A. Doligez, J. Chiquet, L. Le Cunff, and T. Flutre, *Multivariate statistical modelling for qtl detection and marker selection in a bi-parental grapevine population*, in 17. Meeting of the EUCARPIA Section Biometrics in Plant Breeding, 2018.

[CI4] M. Sundqvist, L. De Koning, G. Rigaill, T. Dubois, and J. Chiquet, *Po-435 proteomic classification of triple negative breast cancers*, 3 :p. A402, 2018.

[CI5] M. Champion, J. Chiquet, P. Neuvial, M. Elati, and E. Birmelé, *Identification of deregulated transcription factors involved in subtypes of cancers*, in International Conference on Bioinformatics (InCOB), 2017.

[CI6] J. Chiquet, G. Rigaill, and V. Dervieux, *aricode : a package for efficient computations of standard clustering comparison measures*, in SMPGD : Statistical Methods for Post-Genomic Data, 2017.

[CI7] V. Brault, J. Chiquet, and C. Lévy-Leduc, *Fast detection of block boundaries in block-wise constant matrices*, in International Conference on Machine Learning and Data Mining in Pattern Recognition, 2016.

[CI8] C. Ambroise, J. Chiquet, and M. Szafranski, *A greedy great approach to learn with complementary structured datasets*, in Greed is Great, ICML Workshop, Lille, France, 2015.

[CI9] J. Chiquet, P. Gutierrez, and G. Rigaill, *Weighted fusion penalties for tree inference and its oracle properties*, in Proceedings of the MLCB NIPS'14 workshop, Montréal, 2014.

[CI10] D. Laloé, F. Jaffrezic, J. Chiquet, and M. Gaultier, *FLPCA : a fused-Lasso PCA-based approach to identify footprints of selection in differentiated populations from dense to SNP data : applications to human and cattle data*, in Proceedings of the International Biometric Conference, Florence, Italy, 2014.

[CI11] J. Chiquet, T. Mary-Huard, and S. Robin, *Multi-trait genomic selection via multivariate regression with structured regularization*, in Proceedings of the MLCB NIPS'13 workshop, South Lake Thaoe, 2013.

[CI12] P. Gutierrez, G. Rigaill, and J. Chiquet, *A fast homotopy algorithm for a large class of weighted classification problems*, in Proceedings of the MLCB NIPS'13 workshop, South Lake Thaoe, 2013.

[CI13] J. Chiquet, Y. Grandvalet, and C. Charbonnier, *Sparsity with sign-coherent groups of variables via the cooperative-lasso*, in Proceedings of SPARS'11, Edinburgh, 2011.

[CI14] J. Corvol, C. Vrignaud, K. Tahiri, F. Cormier, C. Charbonnier, F. Charbonnier-Beaupel, W. Carpentier, A. Patat, E. Mascioli, Y. Chiquet, J. Grandvalet, C. Ambroise, G. Edan, and E. Zanelli, *Gene expression signature in whole blood after treatment with amino acid copolymer pi-2301 in multiple sclerosis*, in European Committee for Treatment and Research in Multiple Sclerosis, 2010.

[CI15] Y. Grandvalet, J. Chiquet, and C. Ambroise, *Inferring multiple regulation networks*, in Proceedings of the MLCB NIPS'10 Workshop, Vancouver, 2010.

[CI16] J. Chiquet, N. Limnios, and M. Eid, *Reliability evaluation of a dynamical system in semi-Markovian environment*, in Proceedings of IWAP'08, Compiègne, 2008.

[CI17] J. Chiquet, C. Matias, and C. Ambroise, *Penalized maximum likelihood approach for sparse Gaussian graphical models with hidden structure*, in Proceedings of IWAP'08, Compiègne, 2008.

[CI18] J. Chiquet, N. Limnios, and M. Eid, *Modelling the reliability of degradation processes through Markov renewal theory*, in Proceedings of ESREL'07, Stavanger, 2007.

[CI19] J. Chiquet, N. Limnios, and M. Eid, *Modeling and estimating stochastic dynamical systems with Markov switching*, in Proceedings of ESREL'06, Estoril, 2006.

Research Schools and Tutorials

[ST1] J. Chiquet, S. Donnet, M. Mariadassou, S. Ouadah, and S. Robin, *Introduction à l'analyse de réseau et l'analyse multivariée pour les données de comptage en écologique*, 2 jours d'ateliers de formation pour l'ANR NGB, 2019.

[ST2] J. Chiquet, *Network inference and penalisation : tutorial, lectures*, Surf 64 : Advanced OMIC Profiling and Integration, Master http://www.imperial.ac.uk/school-public-health/study/short-courses/surf-64/, London, Anglet, 2018,2019,2020.

[ST3] J. Chiquet, *Perspective for network inference for microbiological data*, PathoBiome MEM subgroup meeting, INRA, Rennes, 2017.

[ST4] J. Chiquet, *Tutorial on network inference*, STrATEGe : MIA Methodological Network for omic data in Ecology, AgroParisTech, Paris, 2017.

[ST5] J. Chiquet, Tutorial on network inference, Conference CARTABLE, INRA Toulouse, 2016.

[ST6] J. Chiquet, *From gene expression to genomic network*, "Saclay Plant Science" Summer School , https://www6.inra.fr/saclay-plant-sciences_eng/Teaching-and-training/Summer-schools/Summer-School-2016, 2016.

[ST7] J. Chiquet, *Introduction to statistical analysis with* `R`, CNRS formation, https://cnrsformation.cnrs.fr/, 2016.

[ST8] J. Chiquet, *Perspective for network inference for microbiological data*, MEM methodological network, Paris, 2016.

[ST9] J. Chiquet, *Statistics and classification for genomic data*, Bioinformatics Summer School in Angers, http://summerschools.univ-angers.fr/en/index/about-schools/schools/bioinformatics.html, 2016.

[ST10] J. Chiquet, *Application of sparse convex methods in genomics*, Summer School "BigOptim", http://www.gipsa-lab.fr/summerschool/BigOptim, 2015.

[ST11] J. Chiquet, *Introduction to regularization methods in life science*, Cours de 3^{e} cycle, École doctorale ABIES/AgroParisTech, 2012, 2013, 2014, 2015.

Software

Most of the public codes in which I participate are accessible via my github page https://github.com/jchiquet.

[SW1] P. Barbillon, J. Chiquet, and S. Donnet, **sbm : Stochastic Blockmodels**, 2021. https://github.com/GrossSBM/sbm.

[SW2] J. Chiquet, M. Mariadassou, and S. Robin, **PLNmodels : Poisson lognormal models**, 2021.
https://github.com/pln-team/PLNmodels.

[SW3] T. Tabouy, P. Barbillon, and J. Chiquet, **missSBM : handling missing data in the Stochastic Bloc Model**, 2021.
https://CRAN.R-project.org/package=missSBM.

[SW4] J. Chiquet, V. Dervieux, and G. Rigaill, **aricode : a package for efficient computations of standard clustering comparison measures**, 2020.
https://CRAN.R-project.org/package=aricode.

[SW5] F. Guinot, M. Szafranski, J. Chiquet, and C. Ambroise, **SIComORe : Selection of Interaction effects in COmpressed Multiple Omics REpresentation**, 2020.
https://github.com/jchiquet/sicomore-pkg.

[SW6] J. Chiquet, **multivarnet : R package for inferring multi-variate/multi-attribute Gaussian graphical models**, 2019.
https://github.com/jchiquet/multivarNetwork.

[SW7] P. Gutierrez, G. Rigaill, and J. Chiquet, **Univariate hierarchical clustering at large scale**, 2019.
https://github.com/jchiquet/univarclust.

[SW8] A. Hulot, J. Chiquet, and G. Rigaill, **A package for fastly merging tree-like objects**, 2019.
https://CRAN.R-project.org/package=mergeTrees.

[SW9] J. Chiquet, **SPRING : Structured selection of Primordial Relationships IN the General linear model**, 2017.
https://github.com/jchiquet/spring.
Sparse conditional Gaussian graphical modeling with Laplacian regularization.

[SW10] M. Perrot, C. Levy-Leduc, and J. Chiquet, **MultiVarSel : Variable Selection in the Multivariate Linear Model**, 2017.
https://CRAN.R-project.org/package=MultiVarSel.

[SW11] V. Brault and J. Chiquet, **blockseg : two Dimensional Change-Points Detection**, 2016.
https://CRAN.R-project.org/package=blockseg.
Segments a matrix in blocks with constant values. The underlying algorithm is a Lars-type algorithm where all the matrix operation can be computed explicitly.

[SW12] C. Bouveyron, J. Chiquet, P. Latouche, and P.-A. Mattei, **spinyReg : Sparse Generative Model and Its EM Algorithm**, 2015.
https://cran.r-project.org/web/packages/spinyReg/.
Implements a generative model that uses a spike-and-slab like prior distribution obtained by multiplying a deterministic binary vector.

[SW13] J. Chiquet, **Quadrupen : Sparsity by Worst-Case Quadratic Penalties**, 2012.
http://cran.r-project.org/web/packages/quadrupen/.
This package fits classical sparse regression models with efficient active set algorithms by solving quadratic problems.

[SW14] J. Chiquet, **Scoop : Sparse Cooperative Regression**, 2011.
http://julien.cremeriefamily.info/scoop.
Fits coop-Lasso, group-Lasso and tree-group Lasso variants for linear regression and logistic regression.

[SW15] J. Chiquet, G. Grasseau, C. Ambroise, and C. Charbonnier, **SIMoNe : Statistical Inference for MOdular NEtworks**, 2010.
http://github.com/jchiquet/simone.
Implements the inference of co-regulated networks based on partial correlation coefficients from either steady-state or time-course transcriptomic data.