

# JULIEN CHIQUET

## CURRICULUM VITÆ

Last update: 14 janvier 2020

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# CURRICULUM VITÆ

## JULIEN CHIQUET

Born July 26, 1980

French citizen

Married, father of 3 children

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🌐 <https://jchiquet.github.io>

🌐 <https://github.com/jchiquet>

RESEARCHER in Statistics, Habilitation

MIA Paris

UMR 518 AgroParistech/INRA

16, rue Claude Bernard

75231 Paris Cedex 05, France

## BRIEF SUMMARY OF ACTIVITIES

Research themes	STATISTICAL LEARNING, COMPUTATIONAL BIOLOGY Sparse Methods and Regularization · Multivariate Analysis · Latent variable models · Graphical Models · Biological Networks · Applications in Genetics, Genomics and Ecology
production	25 journal papers, 5 book chapters, 11 maintained R/C++ packages.
students	1 coming, 4 ongoing PhD (3 x 50%, 1 x 25%), 4 alumni
Teaching	STATISTICS, MACHINE LEARNING, COMPUTATIONAL SCIENCE ≈ 1660 hours for undergraduate and Master students in departments of mathematics, statistics, biology and computer science
Schools	Université d'Évry, École Nationale Supérieure d'Informatique pour l'Industrie et l'Entreprise (ENSIIE), Université de Technologie de Compiègne (UTC), X – École Polytechnique, École Nationale de la Statistique et de l'Analyse de l'Information (ENSAI), AgroParisTech

## PROFESSIONAL EXPERIENCE

since 2020	SENIOR RESEARCHER INRAE NUMM – Department Mathematics, Informatics and AI MIA Paris, UMR 518 INRA/AgroParisTech
2016–2019	FIRST CLASS RESEARCHER INRA Department of Applied Mathematics and Informatics MIA Paris, UMR 518 INRA/AgroParisTech
2008 – 2015	ASSISTANT PROFESSOR (26 <sup>e</sup> section) UMR 8071 Statistique & Génome, Université d'Évry
2006 – 2008	RESEARCH AND TEACHING ASSISTANT Université de Technologie de Compiègne, Université d'Évry
2003 – 2006	PHD STUDENT French Nuclear Agency (CEA) Saclay

## EDUCATION

2015	HABILITATION IN MATHEMATICS
Title	<i>Contributions to sparse methods for complex data analysis</i>
Reviewers	A. d'Aspremont (ENS), A. Dalalyan (ENSAE), J.-P. Vert (Mines ParisTech)
2003–2007	PHD IN APPLIED MATHEMATICS
Title	<i>Modeling and Estimating degradation processes with application in reliability</i>
Supervisor	French Nuclear Agency (CEA), Saclay 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

2020–2025	EXPANSE : EXPOSOME POWERED TOOLS FOR HEALTHY LIVING IN URBAN SETTINGS
<i>Partners</i>	Imperial College, Utrecht, Columbia, Inserm, IARC + 15 others
<i>Support</i>	Horizon H2020
2020–2023	G2WAS – GRAPE GENES FOR WATER SCARCITY
<i>Partners</i>	AgroParisTech/INRA, AGAP, LEPSE (INRA)
<i>Support</i>	French National Research Agency (ANR)
<i>Involvement</i>	Team leader, 60,000 € for MIA-Paris
2019–2022	SINGLESTATOMICS – <a href="http://anr-singlestatomics.pages.math.cnrs.fr">http://anr-singlestatomics.pages.math.cnrs.fr</a>
<i>Partners</i>	University of Lyon 1, Mines ParisTech, ENS Lyon, AgroParisTech/INRA
<i>Support</i>	French National Research Agency (ANR)
<i>Involvement</i>	12 month, <b>co-PI, Team leader</b> , 210,000 € for MIA-Paris
2019–2022	ECONET – ADVANCED STATISTICAL MODELLING OF ECOLOGICAL NETWORKS
<i>Partners</i>	Sorbonne, Lyon 1 and Lille Universities, AgroParisTech/INRA, ISEM, IEES
<i>Support</i>	French National Research Agency (ANR)
<i>Involvement</i>	8 months, collaborator, 136,000 € for MIA-Paris
2018–2021	NEXT-GEN. BIOMONITORING OF CHANGE IN ECOSYSTEMS STRUCTURE AND FUNCTION
<i>Leader</i>	D. Bohan (DR Inra, Dijon)
<i>Partners</i>	AgroParisTech, INRA (Dijon, Bordeaux, Rennes, Réunion), Imperial College, Cirad
<i>Support</i>	French National Research Agency (ANR)
<i>Involvement</i>	4.8 months, collaborator, 81,000 € for MIA-Paris
2018–2019	KINETICKS – Network and modelling analyses to describe the dynamics of Ixodes ricinus microbiome and its influence in pathogen evolution
<i>Partners</i>	INRA (BIPAR, MaIAGE, MIAP)
<i>Support</i>	Metaprogramm MEM (Meta-omics and microbial ecosystems, INRA)
<i>Involvement</i>	3.8 months, <b>co-PI</b> , 50,000 €

### PAST

2016–2018	BRASSICADIV-PATHO : Microbial diversity and microbial networks associated to Brassica napus and its pathogens
<i>Leader</i>	Christophe Mougél (DR Inra, Rennes), Thierry Candresse (DR Inra, Bordeaux)
<i>Partners</i>	UMR IGEPP, UMR BFP, UMR BioGeCo, UMR EPGV, UMR BioGer
<i>Support</i>	Metaprogramm MEM (Meta-omics and microbial ecosystems, Inra)
2016–2018	LIONS – Large-scale Integrative approach to unravel the complex relationships between differentiation and tumorigenesis
<i>Partners</i>	IGMM/IBC, MAP5, iSSB Évry, Institut Curie, University of York
<i>Support</i>	Plan Cancer 2015 Inserm
2016–2018	LEARNBIOCONTROL : LEARNING ECOLOGICAL NETWORKS FROM METABARCODING DATA : APPLICATION TO BIOLOGICAL CONTROL
<i>Partners</i>	INRA/UMR BioGeCo, Imperial College, AgroParisTech/INRA
<i>Support</i>	MP MEM (Inra)
2015–2018	HYDROGEN – Comparative Metagenomic for Measuring Biodiversity
<i>Partners</i>	AgroParisTech/INRA, CEA-CNS-LABIS, INRIA Rennes/Genscale
<i>Support</i>	French National Research Agency (ANR)
2012–2016	ABS4NGS – Algorithmic, Bioinformatic and Software solutions for the analysis of Next Generation Sequencing data
<i>Partners</i>	Institut Curie, Mines ParisTech, University of Lyon 1, AgroParisTech/INRA,
<i>Support</i>	Investissement d'avenir

2014–2016	AREA – Analyse de la Réponse Evolutive des Arbres forestiers tropicaux dans l’environnement, approche génomique et métabolomique
<i>Partners</i>	AgroParisTech/INRA, UMR EcoFoG, UMR 8638 (CNRS/P5)
<i>Support</i>	Défi CNRS « Enviromics »
2013–2015	REG4SEL – Regularized methods for Genomic Selection
<i>Leader</i>	Tristan Mary-Huard, CR INRA/AgroParisTech
<i>Support</i>	SelGen/French National Institute Agronomic Research (INRA)
<i>Partners</i>	UMR MIAP, UMR Le Moulon, GABI
2011–2015	PLOID-PLOID WHEAT – Unraveling bases of polyploidy and aneuploidy responses in flowering plants, using the wheat ploid model
<i>Partners</i>	INRA (Rennes, Versailles, Grignon), Génoscope, CNRS
<i>Support</i>	French National Research Agency (ANR)
2009–2011	NEMO – Network Motif in Biological Network
<i>Partners</i>	AgroParisTech/INRA, University of Lyon 1, University of Évry
<i>Support</i>	French National Research Agency (ANR)

## RESEARCH ENHANCEMENT

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since 2020	TEAM LEADER OF “STATISTIQUE & GÉNOME” UMR 518 Université Paris-Saclay – AgroParisTech – INRAE
<i>Web</i>	<a href="https://www6.inrae.fr/mia-paris">https://www6.inrae.fr/mia-paris</a>

## CURRENT WORKGROUPS

since 2017	WORKGROUP STATE OF THE R (FUNDING $\approx$ 5000€/YEAR)
<i>Purpose</i>	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
<i>Format</i>	An annual bootcamp (1 week) + a half-day monthly meeting with 20/30 people
<i>Involvement</i>	<b>Group leader</b>
<i>Web</i>	<a href="http://stateofther.github.io">http://stateofther.github.io</a>
since 2009	INRA METHODOLOGICAL WORKGROUP NETBIO (FUNDING $\approx$ 5000€/YEAR)
<i>Purpose</i>	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.
<i>Format</i>	A daylong annual meeting with 50 people
<i>Involvement</i>	<b>Co-leader since 2012</b>
<i>Web</i>	<a href="http://carlit.toulouse.inra.fr/wikiz/index.php/Inférence_de_réseaux_-_réseau_MIA">carlit.toulouse.inra.fr/wikiz/index.php/Inférence_de_réseaux_-_réseau_MIA</a>
2015–2018	GDR “STAT ET SANTÉ”
<i>Purpose</i>	This group aims to structure and disseminate the activities of the French community of medical statistics.
<i>Involvement</i>	Co-leader of the research theme « Statistical learning for massive data analysis »
<i>web</i>	<a href="http://gdr.statsante.fr/">http://gdr.statsante.fr/</a>

## SCIENTIFIC EVENTS

Conference	ORGANIZING COMMITTEE – LEADER
<i>RencontresR’20</i>	Provide a national forum for the sharing of ideas within the R community.
<i>SatRDay’19</i>	SatRDays are community-led, regional conferences with international speakers to support collaboration, networking and innovation in the R community. – <a href="#">web page</a>
Conference	SCIENTIFIC COMMITTEES, ORGANIZING COMMITTEE – PARTICIPATION
	JDS 2020, Rencontres R’18, StatLearn’14, JFRB’14, IWAP 2008, MBN 2007, ...
Lecturer	RESEARCH SCHOOLS AND TUTORIALS
<i>StatXP’19-20</i>	Life-course epidemiology and Exposome, Imperial College – <a href="#">web page</a>
<i>Surf64’17-18</i>	Advanced OMIC Profiling and Integration, Anglet, London – <a href="#">web page</a>
<i>SPS’16</i>	From gene expression to genomic network, Paris-Saclay – <a href="#">web page</a>
<i>Angers’16</i>	Bioinformatic Summer School in Angers – <a href="#">web page</a>
<i>BigOptim’15</i>	Large-Scale Convex optimization – <a href="#">web page</a>

## OTHER PROFESSIONAL ACTIVITIES

### SCIENTIFIC COMMITTEES

	COUNCILS
since 2018	Elected member of the Council of the French Statistical Society
since 2016	Elected member of the Scientific Council of the INRA Math-Info department
	BOARD OF RECRUITMENT
Assistant Professor	2019 : Évreux (26 <sup>e</sup> ) ; 2016 : Paris Sud (64-65 <sup>e</sup> ) ; 2015 : Paris Sud (87 <sup>e</sup> ) ; 2013 : Paris 5 (26 <sup>e</sup> ) ; 2012 : Rouen (26 <sup>e</sup> ) ; 2011 : Picardie (87 <sup>e</sup> ) · Paris Sud (67 <sup>e</sup> ) · Évreux (26 <sup>e</sup> ) ; 2010 : Évreux (26 <sup>e</sup> )
INRA	2018 : INRA (4 Researcher), 2012 : INRA (4 Research Engineer)
	PHD REVIEWING
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
2019	Charlotte Brault (Inra Montpellier)
2018	Arnaud Cougoul (Inra Theix)
2017	May Taha (IGMM Montpellier)
2016	Maximilien Grandclaude (Institut Curie), Arnaud Cougoul (Inra Theix), May Taha (IGMM Montpellier)
2014	Mélina Gallopin (Laboratoire de mathématiques d'Orsay)

### EDITORIAL ACTIVITIES

	RESPONSABILITIES
since 2019	Associate Editor of the <i>Journal of Computational and Graphical Statistics</i>
since 2018	Leader of the publication unit of the French Statistical Society : mission to assist in the renewal of the journals of the society
Reviewer Journal	PAPER REPORTS
	JMLR, JRSS-B, JRSS-C, Scandinavian Jour. Stat., Biometrics, Biometrika, 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, ...

## STUDENTS

### PHD AND POST-DOC – CURRENT

from 2019	CLAIRE GAYRAL
PhD	<i>Single-cell data integration</i>
Supervision	50% with F. Picard DR CNRS, Lyon
since 2017	MARTINA SUNDQVIST
PhD	<i>Multi-omic data integration for new classification in triple-negative breast cancer</i>
Supervision	50% with T. Dubois DR, Institut Curie and G. Rigall, CR, INRA
since 2017	AUDREY HULOT
PhD	<i>Analyse de données-omiques : clustering et inférence de réseaux</i>
Supervision	25% with F. Jaffrezic, DR, Inra (50%) ; H.-J. Garchon, PUPH, Inserm (25%)

## PHD AND POST-DOC – ALUMNI

since 2016 <i>PhD</i> <i>Supervision</i>	TIMOTHÉE TABOUY <i>Modeling and inferring sampling design in probabilistic random network models</i> 50% with P. Barbillon, Assoc. Prof., AgroParisTech
since 2016 <i>PhD</i> <i>Supervision</i>	MARIE PERROT-DOCKES <i>Regularization tools for multivariate analysis : application to multi-omics</i> 50% with Céline Lévy-Leduc, Prof., AgroParisTech
2013-2016 <i>PhD</i> <i>Supervision</i>	TRUNG HA <i>Statistical learning and multivariate analysis for robust regulatory network inference</i> 25% with M.-L. Martin, DR INRA/URGV and G. Rigai, Assoc. Prof., Évry
2015 <i>Post-doc</i> <i>Supervision</i>	DAVID BAKER <i>Regularization methods for genomic selection</i> 50% with Tristan Mary-Huard, CR INRA/Moulon
2011-2014 <i>PhD</i> <i>Supervision</i>	SMAHANE CHALABI <i>Caractérisation de la reprogrammation de l'expression des gènes induite par l'alloploïdie chez le blé</i> 25% with Boulos Chaloub, DR INRA/URGV, Évry
2012-2013 <i>Post-doc</i> <i>Supervision</i>	ÉDITH LE FLOCH <i>Analysis of NGS data to characterize polyploidy</i> 50% with Carène Rizzon, Assoc. Prof., Évry
2011-2013 <i>PhD</i> <i>Supervision</i> <i>Support</i>	JONATHAN PLASSAIS <i>Développement méthodologique pour la méta-analyse appliquée à la caractérisation de signatures chez les patients atteints de maladie auto-immune</i> 50% with Christophe Ambroise, Prof., Évry CIFRE, société TcLand <a href="http://www.tcland-expression.com">www.tcland-expression.com</a>
2009-2012 <i>PhD</i> <i>Supervision</i>	CAMILLE CHARBONNIER <i>Inference of gene regulatory networks from non-iid transcriptomic data</i> 50% with Christophe Ambroise, Prof., Évry

## MASTERS – ALUMNI

2019 <i>Supervision</i> <i>Master</i>	CLAIRE GAYRAL (6 months), University of Lyon 1 with F. Picard (DR CNRS, LBBE, Lyon) <i>Integrating epigenetic and expression data for subclone discrimination in single-cell</i>
2017 <i>Supervision</i> <i>Master 1</i>	RÉMI BERNHARD (2 months), ENSIIE with T. Flûtre, T. Mary-Huard CR INRA, L. Sansonnet, AgroParisTech <i>Structured variable selection for multi-trait GWAS in grapevine</i>
2017 <i>Supervision</i> <i>Master</i>	MARTINA SUNDQVIST (6 months), ENS, Paris-Descartes with T. Dubois, L. De Koning, Institut Curie ; G. Rigai, CR Inra/BAP <i>Clustering for proteomic and transcriptomic analysis of basal breast cancer</i>
2016 <i>Supervision</i> <i>Master</i>	AUDREY HULOT (6 months), ENSAI with G. Rigai, CR and F. Jaffrezic, DR INRA <i>Clustering convexe à large échelle pour la métagénomique</i>
2016 <i>Supervision</i> <i>Master</i>	TIMOTHÉE TABOUY (6 months), Master Math et Science du Vivant, Paris-Saclay with P. Barbillon, S. Ouadah, Assoc. Prof., AgroParisTech ; S. Donnet, CR Inra <i>Modeling and inferring sampling design in probabilistic random network models</i>
2016 <i>Supervision</i> <i>Master</i>	MARGOT BRÉGÈRE (6 months), Master Math et Science du Vivant, Paris-Saclay 33% with C. Lévy-Leduc, Prof. and L. Sansonnet, Assoc. Prof., AgroParisTech <i>Variable selection in Multivariate ANOVA for ecological data</i>
2015 <i>Supervision</i> <i>Master</i>	VALENTIN DERVIEUX (6 months), Télécom Sud Paris 50% with Guillem Rigai, Assoc. Prof., Évry <i>Clustering et analyse multivariée de données métagénomique du porc</i>

2012-2013	PIERRE GUTIERREZ (6 months + 3 months CDD), École Nationale de la Statistique et de l'Administration (ENSAE)
<i>Supervision</i>	50% with Guillem Rigai, Assoc. Prof., Évry
<i>Master</i>	<i>Multi-class differential analysis with fused-Anova</i>
2011	GEN YANG (3 months), ENSIIE
<i>Supervision</i>	50% with Christophe Ambroise, Prof., Évry
<i>Master</i>	<i>Hierarchical Lasso and group-Lasso for gene selection</i>
2011	AUORE MOUTARDE (5 months), MIGS, Université de Bourgogne
<i>Supervision</i>	50% with Yves Grandvalet, DR, UTC
<i>Master</i>	<i>Développements algorithmiques dans les méthodes de régression pénalisée appliquées à la sélection de gènes</i>
2010	CYRILLE LONGIN (6 months), EGOIS, Université de Rouen
<i>Master</i>	<i>Caractérisation automatique de modules fonctionnels dans les réseaux de régulation</i>
2009	CAMILLE CHARBONNIER (5 months), ENSAE
<i>Supervision</i>	50% with Christophe Ambroise, Prof., Évry
<i>Master</i>	<i><math>\ell_1</math> penalization and application to the inference of sparse dynamic regulation networks</i>
2008	ALEXANDER SMITH (6 months), AgroCampusOuest
<i>Supervision</i>	50% with Christophe Ambroise, Prof., Évry
<i>Master</i>	<i>Développement d'une nouvelle méthode d'estimation de réseaux de régulation</i>

## TEACHING ACTIVITIES

Approximately 1660 hours of teachings given various schools and universities : Université d'Évry, Agro-ParisTech, 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).

2020	DATA ANALYSIS AND UNSUPERVISED LEARNING
<i>Msc</i>	Data and Graph Clustering, Mixture model, Stochastic Block Model
<i>web</i>	<a href="https://github.com/jchiquet/CourseUnsupervisedLearningX">https://github.com/jchiquet/CourseUnsupervisedLearningX</a>
2018-19	AN INTRODUCTION TO GRAPH ANALYSIS AND MODELING (36h course/practicals)
<i>Msc</i>	Descriptive Analysis of networks, Stochastic Block Model, Graphical Lasso
<i>web</i>	<a href="https://github.com/jchiquet/CourseStatNetwork">https://github.com/jchiquet/CourseStatNetwork</a>
2015-18	INTRODUCTION REGULARIZATION FOR REGRESSION (154h course/practicals)
<i>Msc</i>	Ridge, Lasso, variable selection, model selection
<i>web</i>	<a href="https://github.com/jchiquet/CourseRegLinearRegression">https://github.com/jchiquet/CourseRegLinearRegression</a>
2017	A SHORT INTRODUCTION TO CONVEX OPTIMIZATION (12h course)
<i>Msc</i>	(sub)-gradient methods, Newton method, Proximal methods
2010,15,16	LINEAR MODEL AND EXTENSIONS (222h course/practicals)
<i>undergraduate</i>	Fisher test, ANOVA, Linear regression, generalized linear model, Smoothing splines
<i>MSc</i>	Mixed and random effects model, repeated-measurements, application in agronomy
2012, 2015	R PROGRAMMING AND STATISTICS (60h course/practicals)
<i>undergraduate</i>	Data and control structures, Hypothesis testing, Linear model
<i>web</i>	<a href="http://julien.cremierfamily.info/teachings_L3BI_ISV51.html">http://julien.cremierfamily.info/teachings_L3BI_ISV51.html</a>
2008, 2015	INTRODUCTION TO MATRIX ALGEBRA AND DATA ANALYSIS (18h course, 38h practicals)
<i>undergraduate</i>	Linear system, Matrix factorization, Spectral decomposition, PCA
2010,12,15	SHORT PROJECT IN MATHEMATICS AND STATISTICS (110h course/practicals)
<i>undergraduate</i>	Penalized regression, Numerical analysis, Simulation, Optimization
2008–11	BASIC MATHEMATICS (148h practicals)
<i>undergraduate</i>	Continuity, Differentiation, Integration, Taylor Series, ODE, mechanics, Maple



2005–11 <i>undergraduate</i>	PROBABILITY AND STATISTIC (39h course, 339h practicals) Random variables, Random Vectors, Independence, Conditioning, Convergence ; Inference, Hypothesis Testing, Confidence Intervals
2008–10 <i>undergraduate</i>	MATHEMATICAL MODELS FOR BIOLOGY (9h course, 35h practicals) dynamic population models, Lotka-Volterra ; sequence analysis, Markov models.
2007–09 <i>MSc</i>	NUMERICAL METHODS FOR EDP (66h practicals) Euler, Runge-Kutta and Newton methods, <b>Scilab</b>
2003,07 <i>MSc</i>	NUMERICAL ANALYSIS (58h practicals) Linear system, Least squares, Numerical integration, Interpolation, ODE
2004,06 <i>MSc</i>	OPERATIONAL RESEARCH (50h practicals) Graphs, Combinatorial optimization, Algorithm, Complexity
2005 <i>postgraduate</i>	INTRODUCTION TO $\text{\LaTeX}$ (12h course/practicals) Typography basics, Typesetting math, Bibliography, Index, Style-sheet



## PAPERS

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### PREPRINT

- [PP1] T. Tabouy, P. Barbillon, and J. Chiquet, *misssbn : An r package for handling missing values in the stochastic block model*, 2019, URL <https://arxiv.org/abs/1906.12201>.
- [PP2] C. Ambroise, J. Chiquet, F. Guinot, and M. Szafranski, *Fast Computation of Genome-Metagenome interaction effects*, URL <https://arxiv.org/abs/1810.12169>.

### JOURNAL PAPERS

- [JP1] 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, URL <http://proceedings.mlr.press/v97/chiquet19a.html>.
- [JP2] M. Grandclaudon, M. Perrot-Dockès, C. Trichot, O. Mostafa-Abouzid, W. Abou-Jaoudé, F. Berger, P. Hupé, D. Thieffry, L. Sansonnet, J. Chiquet, C. Lévy-Leduc, and V. Soumelis, *A Quantitative Multivariate Model of Human Dendritic Cell-T Helper Cell Communication*, *Cell*, 2019, URL <http://dx.doi.org/10.2139/ssrn.3353217>.
- [JP3] 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, URL <https://doi.org/10.1080/01621459.2018.1562934>.
- [JP4] 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, URL <http://dx.doi.org/10.1214/18-AOAS1177>.
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## POPULAR SCIENCE

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## TALKS

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### CONTRIBUTED TALKS (INTERNATIONAL)

- [CI1] J. Chiquet, M. Mariadassou, and S. Robin, *Plinmodels : a collection of models for multivariate analysis in microbial ecology*, in Microbiome COSI, ISMB/ECCB, 2019.
- [CI2] 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.
- [CI3] M. Champion, J. Chiquet, P. Neuviat, M. Elati, and E. Birmelé, *Identification of deregulated transcription factors involved in subtypes of cancers*, in International Conference on Bioinformatics (InCOB), 2017.
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- [CI6] 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.
- [CI7] J. Chiquet, P. Gutierrez, and G. Rigai, *Weighted fusion penalties for tree inference and its oracle properties*, in Proceedings of the MLCB NIPS'14 workshop, Montréal, 2014.
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- [CI14] J. Chiquet, N. Limnios, and M. Eid, *Reliability evaluation of a dynamical system in semi-Markovian environment*, in Proceedings of IWAP'08, Compiègne, 2008.
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- [CI17] J. Chiquet, N. Limnios, and M. Eid, *Modeling and estimating stochastic dynamical systems with Markov switching*, in Proceedings of ESREL'06, Estoril, 2006.

## CONTRIBUTED TALKS (FRENCH)

- [CN1] F. Guinot, M. Szafranski, J. Chiquet, and C. Ambroise, *Une approche hiérarchique de la recherche d'interactions entre données omiques*, in actes des 50<sup>e</sup> journées françaises de statistique, Saclay, 2018.
- [CN2] A. Hulot, J. Chiquet, F. Jaffrezic, and G. Rigail, *Fused-anova : une méthode de clustering en grande dimension*, in actes des 50<sup>e</sup> journées françaises de statistique, Saclay, 2018.
- [CN3] M. Perrot, C. Lévy-Leduc, J. Chiquet, and L. Sansonnet, *Sélection de variables dans le modèle linéaire multivarié en grande dimension avec prise en compte de la dépendance*, in actes des 50<sup>e</sup> journées françaises de statistique, Saclay, 2018.
- [CN4] M. Sundqvist, J. Chiquet, L. de Koning, T. Dubois, and G. Rigail, *Cluster stability for more robust classification in triple-negative breast cancer*, in actes des 50<sup>e</sup> journées françaises de statistique, Saclay, 2018.
- [CN5] T. Tabouy, P. Barbillon, and J. Chiquet, *Identifiabilité du modèle à blocs stochastiques en présence de données manquantes*, in actes des 50<sup>e</sup> journées françaises de statistique, Saclay, 2018.
- [CN6] M. Perrot-Dockes, C. Lévy-Leduc, J. Chiquet, and L. Sansonnet, *Modèle linéaire multivarié parcimonieux avec estimation de covariance : une application à des données de métabolomique*, in actes des 49<sup>e</sup> journées françaises de statistique, Avignon, 2017.
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- [CN9] M.-P. Étienne, J. Chiquet, S. Donnet, and A. Samson, *Méthode conjointe de segmentation-classification pour des modèles d'écologie du déplacement*, in actes des 49<sup>e</sup> journées françaises de statistique, Avignon, 2016.
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- [CN11] P.-A. Mattei, P. Latouche, C. Bouveyron, and J. Chiquet, *Une relaxation continue du rasoir d'Ocam pour la régression en grande dimension*, in actes des 47<sup>e</sup> journées françaises de statistique, Lille, 2015.
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- [CN15] J. Chiquet, Y. Grandvalet, and C. Ambroise, *Inferring multiple graphical structures*, in Workshop MODGRAPHII, JOBIM'10, Montpellier, 2010.
- [CN16] Y. Grandvalet, J. Chiquet, and C. Ambroise, *Inférence jointe de la structure de modèles graphiques gaussiens*, in actes de CAP'10, Clermont-Ferrand, 2010.
- [CN17] J. Chiquet, C. Charbonnier, and C. Ambroise, *SIMoNe : Statistical Inference for Modular Networks*, in Workshop MODGRAPH, JOBIM'09, Nantes, 2009.
- [CN18] J. Chiquet, N. Limnios, and M. Eid, *Processus markoviens de saut dans les équations différentielles stochastiques appliquées à la modélisation de la fatigue des matériaux*, in Congrès Français de Mécanique'05, Troyes, 2005.
- [CN19] J. Chiquet, N. Limnios, T. Yurizin, and M. Eid, *Modèle stochastique de taille critique de fissure dans les structures soumises au vieillissement par irradiation*, in Congrès Français de Mécanique'05, Troyes, 2005.

## INVITED TALKS

- [IT1] *Fast tree inference with weighted fusion penalties*, Computational Intelligence methods for Bioinformatics and Biostatistics (CIBB), Naples, 2015.
- [IT2] *Sparse Gaussian graphical models for biological network inference*, ISI World Statistics Congress, Hong-Kong, 2013.

- [IT3] *Sparse Gaussian graphical models for biological network inference*, StatLearn'13, Bordeaux, 2013.
- [IT4] *Sparsity with sign-coherent groups of variables via the cooperative-lasso*, Statistics and Modeling for Complex Data, Marne-la-Vallée, 2011.
- [IT5] *Learning the structure of Bayesian networks with application in post-genomics*, International Workshop on Bayesian Networks and Applications in Post-genomics, Paris, 2010.
- [IT6] *Penalized maximum likelihood approach for sparse Gaussian graphical models with hidden structure*, International Workshop on Applied Probability, Compiègne, 2008.
- [IT7] *Reliability evaluation of a dynamical system in semi-Markovian environment*, International Workshop on Applied Probability, Compiègne, 2008.
- [IT8] *Modelling degradation processes through a piecewise deterministic Markov process*, Mathematical Methodologies for Operational Risk, Eindhoven, 2007.
- [IT9] *Modelling degradation processes through a piecewise deterministic Markov process with applications to fatigue crack growth*, Recent Advances in Stochastic Operations Research II, Nagoya, 2007.

## 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 NG, 2019.
- [ST2] J. Chiquet, *Network inference and penalisation : lectures*, Surf 64 : Advanced OMIC Profiling and Integration, <http://www.imperial.ac.uk/school-public-health/study/short-courses/surf-64/>, London, 2018,2019.
- [ST3] J. Chiquet, *Network inference and penalisation : tutorial*, Surf 64 : Advanced OMIC Profiling and Integration, [https://github.com/benoit-liquet/XP\\_Practice\\_SURF64](https://github.com/benoit-liquet/XP_Practice_SURF64), Anglet, 2018.
- [ST4] J. Chiquet, *Perspective for network inference for microbiological data*, PathoBiome MEM subgroup meeting, INRA, Rennes, 2017.
- [ST5] J. Chiquet, *Tutorial on network inference*, STRATEGe : MIA Methodological Network for omic data in Ecology, AgroParisTech, Paris, 2017.
- [ST6] J. Chiquet, *Tutorial on network inference*, Conference CARTABLE, INRA Toulouse, 2016.
- [ST7] 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](https://www6.inra.fr/saclay-plant-sciences_eng/Teaching-and-training/Summer-schools/Summer-School-2016), 2016.
- [ST8] J. Chiquet, *Introduction to statistical analysis with R*, CNRS formation, <https://cnrsformation.cnrs.fr/>, 2016.
- [ST9] J. Chiquet, *Perspective for network inference for microbiological data*, MEM methodological network, Paris, 2016.
- [ST10] 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.
- [ST11] J. Chiquet, *Application of sparse convex methods in genomics*, Summer School "BigOptim", <http://www.gipsa-lab.fr/summerschool/BigOptim>, 2015.
- [ST12] J. Chiquet, *Introduction to regularization methods in life science*, Cours de 3<sup>e</sup> cycle, École doctorale ABIES/AgroParisTech, 2012, 2013, 2014, 2015.

## SEMINARS AND ORAL COMMUNICATIONS

- [ST1] Séminaire de l'équipe de statistique, IMT, Toulouse, 2019.
- [ST2] Assemblée général du département MIA, MaIAGE, Jouy-en-Josas, 2019.
- [ST3] Séminaire du groupe de travail Pasadena, Université Paris Saclay, 2019.
- [ST4] Séminaire du Centre de Bioinformatique de Bordeaux, Centre de Génomique Fonctionnelle de Bordeaux, 2019.
- [ST5] Séminaire de Probabilité et Statistiques, LMAP, Anglet, 2018.
- [ST6] Pathobiome 2018 : Pathogens in microbiota in hosts, Ajaccio, Corsica, 2018.
- [ST7] Séminaire de Probabilité et Statistiques, Institut Élie Cartan de Lorraine, 2018.
- [ST8] Recent Computational Advances in Metagenomics (RCAM'17)", Insitut Pasteur, 2017.



- [ST9] Séminaire joint AgroParisTech, Paris, 2017, 2015, 2014, 2013a, 2013b.
- [ST10] Recent advances in Segmentation Problems, AgroParisTech, 2017.
- [ST11] MEM INRA metaprogramm : MEM days, Paris, 2017.
- [ST12] SMPGD : Statistical Methods for Post-Genomic Data, Paris, 2017a, 2017b.
- [ST13] Séminaire LMAC, UTC, Compiègne, 2016.
- [ST14] Séminaire MaIAGE, INRA, Jouy, 2016.
- [ST15] Séminaire P-MAG, Paris, 2016.
- [ST16] Séminaire Télécom Paris, Paris, 2016.
- [ST17] Séminaire parisien de statistiques, Paris, 2015, 2011.
- [ST18] Séminaire du groupe SSB (Statistics for Systems Biology), Paris, 2015, 2014, 2012, 2011, 2010.
- [ST19] Séminaire du MAP5, Paris, 2014.
- [ST20] Séminaire du SAMM, Paris 1, Paris, 2014.
- [ST21] SMPGD : Statistical Methods for Post-Genomic Data, Paris, 2014a, 2014b.
- [ST22] Modal team workshop, Lille, 2014, 2013.
- [ST23] Séminaire du laboratoire de mathématiques appliquées de Toulouse, Toulouse, 2013.
- [ST24] GDR Modélisation bioinformatique en biologie et médecine, Nice, 2008.
- [ST25] Groupe de travail en statistique du laboratoire Raphaël Salem, Rouen, 2007, 2016.
- [ST26] Séminaire du Laboratoire Statistique et Génome, Évry, 2007.
- [ST27] Séminaire du Laboratoire de Mathématiques Appliquées, Compiègne, 2007.
- [ST28] Mathematical Methods for Survival Analysis, Reliability and Quality of Life, Paris, 2006.

## SOFTWARE

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

- [SW1] J. Chiquet, **multivarnet : R package for inferring multi-variate/multi-attribute Gaussian graphical models**, 2019.  
<https://github.com/jchiquet/multivarNetwork>.
- [SW2] J. Chiquet, M. Mariadassou, and S. Robin, **PLNmodels : Poisson lognormal models**, 2019.  
<https://github.com/jchiquet/PLNmodels>.
- [SW3] P. Gutierrez, G. Rigai, and J. Chiquet, **Univariate hierarchical clustering at large scale**, 2019.  
<https://github.com/jchiquet/univarclust>.  
Fast implementations (in  $O(n \log(n))$ ) of two univariate hierarchical clustering methods (1 dimensional Ward hierarchical clustering and l1 clusterpath).
- [SW4] A. Hulot, J. Chiquet, and G. Rigai, **A package for fastly merging tree-like objects**, 2019.  
<https://CRAN.R-project.org/package=mergeTrees>.
- [SW5] T. Tabouy, P. Barbillon, and J. Chiquet, **missSBM : handling missing data in the Stochastic Bloc Model**, 2019.  
<https://CRAN.R-project.org/package=missSBM>.
- [SW6] J. Chiquet, V. Dervieux, and G. Rigai, **aricode : a package for efficient computations of standard clustering comparison measures**, 2018.  
<https://CRAN.R-project.org/package=aricode>.
- [SW7] 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.
- [SW8] M. Perrot, C. Levy-Leduc, and J. Chiquet, **MultiVarSel : Variable Selection in the Multivariate Linear Model**, 2017.  
<https://CRAN.R-project.org/package=MultiVarSel>.
- [SW9] V. Brault and J. Chiquet, **blockseg : two Dimensional Change-Points Detection**, 2016.  
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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.

- [SW10] 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.
- [SW11] J. Chiquet, **Quadrupen : Sparsity by Worst-Case Quadratic Penalties**, 2012.  
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This package fits classical sparse regression models with efficient active set algorithms by solving quadratic problems.
- [SW12] J. Chiquet, **Scoop : Sparse Cooperative Regression**, 2011.  
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<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.