Julien Chiquet

Curriculum Vitæ

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Curriculum Vitæ

Julien Chiquet

Born July 26, 1980
French citizen
Married, father of 2 children

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Researcher in Statistics, INRA

MIA Paris
UMR 518 AgroParistech/INRA
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Brief summary of activities

Research	Statistical Learning, Computational Biology 16 journal papers, 4 book chapters, 7 maintained R packages.
since 2007	Sparse Methods and Regularization · Gaussian Graphical Models · Multivariate Analysis · High Dimensional Data · Applications in Genetics, Genomics and Ecology
2003–2007	Differential Systems with Markovian switching · Markov and semi-Markov processes · Application in Reliability
Teaching	Statistics, Data Mining, Numerical Analysis ≈ 1400 hours for undergraduate and Master students in biology, mathematics and computer science departments
Schools	Université d'Évry, École Nationale Supérieure d'Informatique pour l'Industrie et l'Entreprise (ENSIIE), Université de Technologie de Compiègne (UTC), École Nationale de la Statistique et de l'Analyse de l'Information (ENSAI), AgroParisTech

Professional experience

from 2016	First class Researcher INRA Department of Applied Mathematics and Informatics (MIA) MIA Paris, UMR 518 INRA/AgroParisTech
2012 – 2015	Invited researcher position INRA (3 years) MIA Paris, UMR 518 INRA/AgroParisTech
2008 – 2015	Assistant Professor (26e 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	*Contributions to sparse methods for complex data analysis*
Reviewers	A. d'Aspremont (DR CNRS, ENS), A. Dalalyan (PR, ENSAE), J.-P. Vert (DR Mines ParisTech/Institut Curie)
2003–2007	PhD in Applied Mathematics
Title	*Modeling and Estimating degradation processes with application in reliability*
Supervisor	Nikolaos Limnios (PR 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

Research enhancement

Participation to research grants

2016–2018	LIONS – Large-scale Integrative approach to unravel the complex relationships between differentiatiON and tumorigenesiS
Leader	Mohamed ELATI, MCF, Université d'Évry Val-d'Essonne
Support	Plan Cancer 2015 Inserm
Own funding	15,000 € + 1 Post-doc (2 years) pour l'équipe (leader: É. Birmelé)
2015–2018	HYDROGEN – Comparative Metagenomic for Measuring Biodiversity, Application to Ocean Life Studies
Leader	Dominique Lavenier, DR CNRS, IRISA/INRIA Rennes
Support	French National Research Agency (ANR)
Own funding	20,000 € + 1 Post-doc (2 years)
2015–2016	BeFast – Deriving Better learning procedures from FASTer algorithms to deal with a huge amount of Data
Leader	Alain Célisse, Assoc. Prof., University Lille 1
Support	PEPS CNRS Fascido
2013–2015	Reg4Sel – Regularized methods for Genomic Selection
Leader	Tristan Mary-Huard, CR INRA/AgroParisTech
Support	SelGen/French National Institute Agronomic Research (INRA)
Own funding	17,000 € + 1 Post-doc (2 years)
2013–2014	ENORM – Enumeration of Near-Optimal Regulation Misbehaviours
Leader	Étienne Birmelé, PR University Paris 5
Support	PEPS CNRS
2011–2015	Ploid-Ploid wheat – Unraveling bases of polyploidy and aneuploidy responses in flowering plants, using the wheat ploid model
Leader	Boulos Chaloub, Senior Researcher INRA
Support	French National Research Agency (ANR)
Own funding	85,000 €
2009–2011	NeMo – Network Motif in Biological Network
Leader	Stéphane Robin, Senior Researcher INRA/AgroParisTech
Support	French National Research Agency (ANR)
Own funding	37,000 €
2005–2008	GD2GS – From Genomic Data to Graph Structure
Leader	Florence d'Alché-Buc, Prof. Évry
Support	French National Research Agency (ANR)

Current workgroups

since 2009	INRA methodological workgroup NetBio (funding ≈ 4000€/year)
Purpose	This group is meant to evaluate the performance of the reconstruction methods for networks in the framework of molecular biology
Format	A daylong annual meeting with 50 people
Involvement	Co-organizer since 2012, regular speaker
Web	carlit.toulouse.inra.fr/wikiz/index.php/Inférence_de_réseaux_-_réseau_MIA
since 2015	GDR "Stat et Santé"
Purpose	This group aims to structure and disseminate the activities of the French community of medical statistics.
Involvement	Co-leader of the research theme "Statistical learning for massive data analysis"
web	http://gdr.statsante.fr/

OTHER PROFESSIONAL ACTIVITIES

Workshop	**ORGANIZING COMMITTEE**
StatLearn'14	Challenging problems in Statistical Learning – web page
JFRB'14	Journées Francophones sur les Réseaux Bayésiens – web page
IWAP 2008	International Workshop on Applied Probability 2008 – web pagr
MBN 2007	Mathematics for Biological Networks 2007
Summer School	**INTERVENANT**
SPS'16	From gene expression to genomic network – web page
Angers'16	Bioinformatic Summer School in Angers – web page
BigOptim'15	Large-Scale Convex optimization – web page
Committee	**BOARD OF RECRUITMENT**
2016	Assistant Professor, Paris Sud (64-65e)
2015	Assistant Professor, Paris Sud (87e)
2013	Assistant Professor, Paris V (26e)
2012	Research Engineer INRA · Assistant Professor, Rouen (26e)
2011	Assistant Professor, Picardie (87e) · Paris Sud (67e) · Évry (26e)
2010	Assistant Professor, Évry (26e)
Committee	**PHD DEFENCE COMMITTEE**
2016	Samuel Balmand (Reviewer), Quentin Grimonprez (Reviewer), Rawya Zreik (Reviewer), Niels Ternes
Reviewer	**PAPER REPORTS**
Journal	Biometrics, Electronic Journal of Statistics, Plos Computational Biology, Computational Statistics and Data Analysis, Biometrika, Bioinformatics, IEEE/ACM Transactions on Computational Biology and Bioinformatics, ESAIM Prob. and Stat., SAGMB, EURASIP Journal on Bioinformatics and Systems Biology, BMC Medical Research Methodology, International Journal of Fatigue, Methodology and Computing in Applied Probability, QTQM, Revue d'Intelligence Artificielle, Revue des Nouvelles Technologies de l'Information
Conference	ICML 2015, NIPS 2012–2016, JdS 2011, JOBIM 2008, ESREL 2007, IWAP 2008
Others	**VARIOUS RESPONSABILITIES**
2016	Elected member of the Scientific Council of the INRA Math-Info department

STUDENTS

PHD AND POST-DOC

CURRENT

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

ALUMNI

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, Senior Researcher 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

CURRENT

2017	MARTINA SUNDQVIST (6 months)
	ENS, Paris-Descartes, INstitut Curie
Supervision	33% with Guillem Rigaill, CR Inra and Thierry Dubois, Institut Curie
Master	*Network inference and Clustering for proteomic and transcriptomic analysis of basal breast cancer*

ALUMNI

2016	AUDREY HULOT(6 months)
	École Nationale de la Statistique et de l'Analyse de l'Information (ENSAI)
Supervision	33% with Guillem Rigaill, CR and Florence Jaffrezic, DR INRA
Master	*Clustering convexe à large échelle pour la métagénomique*

2016	TIMOTHÉE TABOUY (6 months)
	Master Math et Science du Vivant, Paris-Saclay
Supervision	50% with Guillem Rigaill, Assoc. Prof., Évry
Master	*Modeling and inferring Sampling design in probabilistic random network models*

2016	MARGOT BRÉGÈRE (6 months)
	Master Math et Science du Vivant, Paris-Saclay
Supervision	33% with C. Lévy-Leduc, Prof. and L. Sansonnet, Assoc. Prof., AgroParisTech
Master	*Variable selection in Multivariate ANOVA for ecological data*

2015	VALENTIN DERVIEUX (6 months)
	Télécom Sud Paris
Supervision	50% with Guillem Rigaill, Assoc. Prof., Évry
Master	*Clustering et analyse multivariée de données métagénomique du porc*

2012-2013	PIERRE GUTIERREZ (6 months + 3months CDD)
	École Nationale de la Statistique et de l'Administration (ENSAE)
Supervision	50% with Guillem Rigaill, Assoc. Prof., Évry
Mastère	*Multi-class differential analysis with fused-Anova*

2011	GEN YANG (3 months)
	École Nationale Supérieure d'Informatique pour l'Industrie et l'Entreprise (ENSIIE)
Supervision	50% with Christophe Ambroise, Prof., Évry
Master	*Hierarchical Lasso and group-Lasso for gene selection*

2011	AURORE MOUTARDE (5 months)
	MIGS, Université de Bourgogne
Supervision	50% with Yves Grandvalet, Senior Researcher, UTC
Master	*Développements algorithmiques dans les méthodes de régression pénalisée appliquées à la sélection de gènes*

2010	CYRILLE LONGIN (6 months)
	EGOISt, Université de Rouen
Supervision	100%
Master	*Caractérisation automatique de modules fonctionnels dans les réseaux de régulation*
2009	CAMILLE CHARBONNIER (5 months)
	École Nationale de la Statistique et de l'Administration (ENSAE)
Supervision	50% with Christophe Ambroise, Prof., Évry
Master	ℓ_1 *penalization and application to the inference of sparse dynamic regulation networks*
2008	ALEXANDER SMITH (6 months)
	AgroCampusOuest
Supervision	50% with Christophe Ambroise, Prof., Évry
Master	*Développement d'une nouvelle méthode d'estimation de réseaux de régulation*

TEACHING ACTIVITIES

Approximately 1400 hours of teachings given various schools and universities: Université d'Évry, AgroParis-Tech, 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.

2016 *MSc*	LINEAR MIXED MODEL(30h course/practicals) Mixed and random effects model, repeated-measurements, application in agronomy
2015, 2016 *MSc*	ADVANCED REGRESSION (130h course/practicals) Multivariate regression, Generalized Linear model, Smoothing splines, Regularization
2010, 2012 *undergraduate*	SHORT PROJECT IN MATHEMATICS (50.5h practicals) Numerical analysis, Simulation, Optimization
2012, 2015 *MSc*	PROJECTS IN STATISTICS (60h course/practicals) LASSO, Penalized regression, Cross-validation
2008, 2015 *undergraduate*	INTRODUCTION TO MATRIX ALGEBRA AND DATA ANALYSIS (18h course, 38h practicals) Linear system, Matrix factorization, Spectral decomposition, PCA
2011, 2015 *MSc*	SHORT COURSE IN STATISTICS (12h course, 50h practicals) Hypothesis testing, Multivariate regression, Generalized Linear model
2016 *MSc*	INTRODUCTION TO GRAPHICAL MODELS (20h course/practicals) Bayesian networks, Gaussian graphcial models, Belief propagation
2012, 2015 *undergraduate*	R PROGRAMMING AND STATISTICS(60h course/practicals) Data and control structures, Hypothesis testing, Linear model
2008-2011 *undergraduate*	PROBABILITY AND STATISTICS – RANDOM VARIABLES (136h practicals) Discrete random variables, Basic probability, Hypothesis testing
2008–2011 *undergraduate*	BASIC MATHEMATICS (112h practicals) Continuity, Differentiation, Integration, Taylor Series, ODE
2009, 2010 *undergraduate*	LINEAR MODEL (39h practicals) Fisher test, ANOVA, Linear regression
2009, 2010 *undergraduate*	INTRODUCTION TO POPULATION DYNAMICS (9h course, 13.5h practicals) Malthus, Verhulst, Leslie, Lokta-Volterra models
2008, 2010 *MSc*	MARKOV CHAINS AND ANNOTATION (21h practicals) Sequence analysis, Viterbi, Hypothesis testing
2007–2010 *undergraduate*	PROBABILITY AND STATISTICS (39h course, 78h practicals) Continuous random variables, Gaussian, Hypothesis testing
2009 *undergraduate*	AN INTRODUCTION TO MAPLE (36h practicals) Calculus, basic mechanics, `Maple`
2007–2009 *MSc*	NUMERICAL METHODS FOR EDP (66h practicals) Euler, Runge-Kutta and Newton methods, `Scilab`
2007 *MSc*	BASIC STATISTICS (34h practicals) Inference, confidence interval, hypothesis testing, linear regression
2005, 2007 *undergraduate*	BASIC PROBABILITY (89h practicals) Random variables, Random Vectors, Independence, Conditioning, Convergence
2003, 2007 *MSc*	NUMERICAL ANALYSIS (58h practicals) Linear system, Least squares, Numerical integration, Interpolation, ODE
2004, 2006 *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] V. Brault, J. Chiquet, and C. Lévy-Leduc, *A fast approach for multiple change-point detection in two-dimensional data*, submitted.

[PP2] D. Laloé, J. Chiquet, F. Jaffrézic, and M. Gautier, *Flpca: A fused lasso pca-based approach to identify influential markers in differentiated populations from dense snp data*, submitted.

[PP3] Y. Grandvalet, J. Chiquet, and C. Ambroise, *Sparsity by worst-case quadratic penalties*, arXiv preprint.

Journal papers

[JP1] J. Chiquet, P. Gutierrez, and G. Rigaill, *Fast tree inference with weighted fusion penalties*, Journal of Computational and Graphical Statistics, pp. 205–216, 2017, URL http://dx.doi.org/10.1080/10618600.2015.1096789.

[JP2] J. Chiquet, Y. Grandvalet, and G. Rigaill, *On coding effects in regularized categorical regression*, Statistical Modelling, (3):pp. 228–237, 2016, URL http://dx.doi.org/10.1177/1471082X16644998.

[JP3] J. Chiquet, T. Mary-Huard, and S. Robin, *Structured regularization for conditional Gaussian graphical models*, Statistics and Computing, (3):pp. 789–804, 2016, URL http://dx.doi.org/10.1007/s11222-016-9654-1.

[JP4] 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, URL http://dx.doi.org/10.1016/j.jmva.2015.09.004.

[JP5] 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, URL http://bmcsystbiol.biomedcentral.com/articles/10.1186/1752-0509-9-S6-S6.

[JP6] 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, URL http://www.sciencemag.org/content/345/6199/950.

[JP7] 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, URL http://onlinelibrary.wiley.com/doi/10.1111/nph.12108/full.

[JP8] 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, URL http://projecteuclid.org/euclid.aoas/1339419617.

[JP9] J. Chiquet, Y. Grandvalet, and C. Ambroise, *Inferring multiple graphical models*, Statistics and Computing, 21(4):pp. 537–553, 2011, URL http://dx.doi.org/10.1007/s11222-010-9191-2.

[JP10] 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, URL http://www.bepress.com/sagmb/vol9/iss1/art15.

[JP11] C. Ambroise, J. Chiquet, and C. Matias, *Inferring sparse Gaussian graphical models with latent structure*, Electronic Journal of Statistics, 3:pp. 205–238, 2009, URL http://projecteuclid.org/DPubS?service=UI&version=1.0&verb=Display&handle=euclid.ejs/1238078905.

[JP12] 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, URL http://dx.doi.org/10.1016/j.jspi.2008.05.034.

[JP13] J. Chiquet, A. Smith, G. Grasseau, C. Matias, and C. Ambroise, *SIMoNe: Statistical Inference for MOdular NEtworks*, Bioinformatics, 25(3):pp. 417–418, 2009, URL http://dx.doi.org/10.1093/bioinformatics/btn637.

[JP14] J. Chiquet and N. Limnios, *A method to compute the transition function of a piecewise deterministic Markov process*, Statistics and Probability Letters, 78(12):pp. 1397–1403, 2008, URL http://dx.doi.org/10.1016/j.spl.2007.12.016.

[JP15] J. Chiquet, N. Limnios, and M. Eid, *Modelling and estimating stochastic dynamical systems with Markovian switching*, Reliability Engineering and System Safety, 93(12):pp. 1801–1808, 2008, URL http://dx.doi.org/10.1016/j.ress.2008.03.016.

[JP16] 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/e8736480p2027l13/.

BOOK CHAPTERS

[BC1] A. Vacher, C. Tamaddoni-Nezhad, S. Kamenova, N. Peyrard, L. Schwaller, J. Julien Chiquet, M. Smith, J. Vallance, Y. Moalic, R. Sabbadin, V. Fievet, B. Jakuschkin, and D. Bohan, *Advances in Ecological Research*, chap. Learning Ecological Networks from Next-Generation Sequencing Data, 2016.

[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.

POPULAR SCIENCE

[PS1] J. Chiquet, *Statistique et génome: réseaux biologiques*, La gazette des mathématiciens, 130:pp. 76–82, 2011, URL http://smf4.emath.fr/en/Publications/Gazette/2011/130/.

TECHNICAL REPORTS

[R1] J. Chiquet, *Pascal : Probabilistic fracture mechanics applied safety computing ageing lwr*, Tech. Rep. SERMA/LCA/RT/05-3459, CEA, 2005.

[R2] J. Chiquet, *Équations différentielles stochastiques appliquées à la modélisation de la fatigue des matériaux*, Tech. Rep. SERMA/LCA/RT/05-3583, CEA, 2005.

[R3] J. Chiquet, *Vers le développement de modèles aléatoires pour le vieillissement des structures : une approche stochastique*, Tech. Rep. SERMA/LCA/RT/04-3417, CEA, 2004.

THESIS

[TS1] J. Chiquet, *Contributions to sparse methods for complex data analysis*, Habilitation thesis, Université d'Évry Val-d'Essonne, 2015, URL https://tel.archives-ouvertes.fr/tel-01288976/.

[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, URL http://tel.archives-ouvertes.fr/tel-00165782.

[TS3] J. Chiquet, *Estimation des températures journalières à l'aide de techniques markoviennes*, Master's thesis, Université de Technologie de Compiègne, 2003, URL http://julien.cremeriefamily.info/doc/master_thesis.pdf.

Talks

Contributed talks (international)

[CI1] 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.

[CI2] 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.

[CI3] 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, URL http://ai.stanford.edu/~saram/mlcb_2013/MLCB13_submission12.pdf.

[CI4] 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, URL http://ai.stanford.edu/~saram/mlcb_2013/MLCB13_submission4.pdf.

[CI5] 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, URL http://www.see.ed.ac.uk/drupal/sites/default/files/spars2011/spars11.pdf.

[CI6] 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.

[CI7] Y. Grandvalet, J. Chiquet, and C. Ambroise, *Inferring multiple regulation networks*, in Proceedings of the MLCB NIPS'10 Workshop, Vancouver, 2010.

[CI8] J. Chiquet, N. Limnios, and M. Eid, *Reliability evaluation of a dynamical system in semi-Markovian environment*, in Proceedings of IWAP'08, Compiègne, 2008.

[CI9] 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.

[CI10] J. Chiquet, N. Limnios, and M. Eid, *Modelling the reliability of degradation processes through Markov renewal theory*, in Proceedings of ESREL'07, Stavanger, 2007.

[CI11] 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] V. Brault, J. Chiquet, and C. Lévy-Leduc, *Détection rapide des frontières des blocs d'une matrice constante par blocs bruitée*, in actes des 48ᵉ journées françaises de statistique, Montpellier, 2016.

[CN2] T. Mary-Huard, J. Chiquet, A. Célisse, and M. Fuchs, *Formule exacte pour la validation croisée dans le cadre de la régression "pool-sample"*, in actes des 47ᵉ journées françaises de statistique, Lille, 2015.

[CN3] P.-A. Mattei, P. Latouche, C. Bouveyron, and J. Chiquet, *Une relaxation continue du rasoir d'Occam pour la régression en grande dimension*, in actes des 47ᵉ journées françaises de statistique, Lille, 2015.

[CN4] J. Chiquet, T. Mary-Huard, and S. Robin, *Inférence jointe de la structure de modèles graphiques gaussiens*, in actes des 46ᵉ journées françaises de statistique, Rennes, 2014.

[CN5] J. Plassais, J. Chiquet, A. Cervino, and C. Ambroise, *A comparison of two statistical methods combining high-throughput data to predict the level of disease activity in patients with rheumatoid arthritis*, in JOBIM'12, Rennes, 2012.

[CN6] C. Charbonnier, J. Chiquet, and C. Ambroise, *Weighted-lasso for structured network inference for time-course data*, in JOBIM'10, Montpellier, 2010.

[CN7] J. Chiquet, Y. Grandvalet, and C. Ambroise, *Inferring multiple graphical structures*, in Workshop MODGRAPHII, JOBIM'10, Montpellier, 2010.

[CN8] Y. Grandvalet, J. Chiquet, and C. Ambroise, *Inférence jointe de la structure de modèles graphiques gaussiens*, in actes de CAp'10, Clermont-Ferrand, 2010.

[CN9] J. Chiquet, C. Charbonnier, and C. Ambroise, *SIMoNe : Statistical Inference for Modular Networks*, in Workshop MODGRAPH, JOBIM'09, Nantes, 2009.

[CN10] 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.

[CN11] 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, *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.

[ST2] 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.

[ST3] J. Chiquet, *Application of sparse convex methods in genomics*, Summer School "BigOptim", http://www.gipsa-lab.fr/summerschool/BigOptim, 2015.

[ST4] J. Chiquet, *Introduction to regularization methods in life science*, Cours de 3e cycle, École doctorale ABIES/AgroParisTech, 2012, 2013, 2014, 2015.

[ST5] J. Chiquet, *Introduction to statistical analysis with* `R`.

Seminars and oral communications

[ST1] CARTABLE conference on network inference, INRA Toulouse, 2016.

[ST2] Séminaire LMAC, UTC, Compiègne, 2016.

[ST3] Séminaire MaIAGE, INRA, Jouy, 2016.

[ST4] Séminaire P-MAG, Paris, 2016.

[ST5] Mini tutorial on Network for MEM INRA metaprogramm, Paris, 2016, 2017.

[ST6] Séminaire Télécom Paris, Paris, 2016.

[ST7] Séminaire parisien de statistiques, Paris, 2015, 2011.

[ST8] Séminaire joint AgroParisTech/Select INRIA team, Paris, 2015, 2014, 2013a, 2013b.

[ST9] Séminaire du groupe SSB (Statistics for Systems Biology), Paris, 2015, 2014, 2012, 2011, 2010.

[ST10] Séminaire du MAP5, Paris, 2014.

[ST11] Séminaire du SAMM, Paris 1, Paris, 2014.

[ST12] SMPGD: Statistical Methods for Post-Genomic Data, Paris, 2014a, 2014b.

[ST13] Modal team workshop, Lille, 2014, 2013.

[ST14] Séminaire du laboratoire de mathématiques appliquées de Toulouse, Toulouse, 2013.

[ST15] GDR Modélisation bioinformatique en biologie et médecine, Nice, 2008.

[ST16] Groupe de travail en statistique du laboratoire Raphaël Salem, Rouen, 2007,2016.

[ST17] Séminaire du Laboratoire Statistique et Génome, Évry, 2007.

[ST18] Séminaire du Laboratoire de Mathématiques Appliqués, Compiègne, 2007.

[ST19] Mathematical Methods for Survival Analysis, Reliability and Quality of Life, Paris, 2006.

SOFTWARE

[SW1] J. Chiquet, V. Dervieux, and G. Rigaill, **aricode:a package for efficient computations of standard clustering comparison measures**, 2017.

  https://github.com/jchiquet/aricode.

[SW2] 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.

[SW3] 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. Such a model allows an EM algorithm, optimizing a type-II log-likelihood.

[SW4] J. Chiquet, **SPRING: Structured selection of Primordial Relationships IN the General linear model**, 2014.

  https://r-forge.r-project.org/projects/spring-pkg/.

  This package fits multivariate regression models using sparse conditional Gaussian graphical modeling with Laplacian regularization.

[SW5] P. Gutierrez, G. Rigaill, and J. Chiquet, **Fused-Anova**, 2013.

https://r-forge.r-project.org/projects/fusedanova/.

This package adjusts a penalized ANOVA model with Fusion penalities, i.e. a sum of weighted l1-norm on the difference of each coefficient. The fitting procedure is accompanied by a highly efficient cross-validation method.

[SW6] 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. It also provides a few methods for model selection purposes (cross-validation, stability selection).

[SW7] J. Chiquet, **Scoop: Sparse Cooperative Regression**, 2011.

http://julien.cremeriefamily.info/scoop.

This R package fits coop-Lasso, group-Lasso and tree-group Lasso variants for linear regression and logistic regression. The cooperative-Lasso (in short, coop-Lasso) may be viewed as a modification of the group-Lasso penalty that promotes sign coherence and that allows zeros within groups.

[SW8] J. Chiquet, G. Grasseau, C. Ambroise, and C. Charbonnier, **SIMoNe: Statistical Inference for MOdular NEtworks**, 2010.

http://julien.cremeriefamily.info/simone.

SIMoNe (Statistical Inference for MOdular NEtworks) is an R package which implements the inference of co-regulated networks based on partial correlation coefficients from either steady-state or time-course transcriptomic data. This package can deal with samples collected in different experimental conditions. In this particular case, multiple related graphs are inferred simultaneously. The underlying statistical tools enter the framework of Gaussian graphical models (GGM). Basically, the algorithm searches for a latent clustering of the network to drive the selection of edges through an adaptive l1-penalization of the model likelihood.

[SW9] S. Lèbre and J. Chiquet, **G1DBN**, 2008.

http://cran.r-project.org/src/contrib/Archive/G1DBN/.

A package performing Dynamic Bayesian Network inference.

[SW10] J. Chiquet, **Crack growth modeling via (semi)-Markovian switching processes**, 2007.

Scilab toolbox for CEA internal use.

[SW11] J. Chiquet, **Estimating daily temperatures with heterogeneous Markov Chains**, 2003.

R package for internal use at Gaz de France.

[SW12] J. Chiquet, **Modeling the λ-phage through agent-based programming**, 2002.