ARTHUR CHARPENTIER

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Personal

Canadian & French citizen – Bilingual (French-English) – 3 children

Research Interests

Predictive Modeling, Insurance, Mathematical Economics, Networks & Algorithms, Statistics & Econometrics, Machine Learning, Climate & Catastrophe Modeling, Extremes & Dependence, Inequalities & Fairness.

Bio

Experience

Université du Québec à Montréal (UQAM) — Montréal, Canada
Full Professor, Mathematics Department — *since 2018*
- *Member of MSc & PhD Admission Selection Committee*
- *Member of BSc Supervising committee (in Actuarial Science)*
- *STT1000, MAT4681, STT5100, ACT6100, INF7100, MAT7381, STT8330, MAT998P*
- *Quantact Member of the Scientific Committee & Seminar Organisation*

Université de Rennes — Rennes, France
Full Professor (Professeur des Universités), Faculty of Economics — *since 2017*
- *Member of CREM (UMR 6211 CNRS)*
- *Currently secondment ("détachement") at UQAM*

Institut des Actuaires — Paris, France
Director, Data Science for Actuaries Program — *2015-2018*
(with R.Élie and J.Jakubowicz)
- *Continuing education for qualified actuaries on machine learning and data science*

Université de Rennes — Rennes, France
Assistant Professor (Maître de Conférences), Faculty of Economics — *2014-2017*
- *Member of the faculty board*
- *Teaching Statistics, Networks, Mathematical Finance and Portfolio Management*

Université du Québec à Montréal — Montréal, Canada
Professor, Mathematics Department — *2011-2014*
- *Member of BSc Supervising committee (in Actuarial Science)*
- *Member of Recruiting Committees (Statistics and Actuarial Science)*
- *Teaching ACT2040, ACT2121, ACT6420, MAT7381, MAT8181, MAT8595, MAT8886*

Université de Montréal — Montréal, Canada
Visiting Professor, Mathematics Department — *2010-2011*

École Polytechnique — Palaiseau, France
Professeur Chargé de Cours, Economics Department — *2008-2010*
- *Teaching ECO431, ECO550, ECO556, ECO568*

Université de Rennes ▸ Rennes, France
Assistant Professor - Maître de Conférences, Faculty of Economics *2007-2010*
- *Co-director of the Econometrics & Statistics MSc*
- *Teaching Econometrics, Mathematical Statistics, Insurance Modeling*

École Nationale de la Statistique et d'Analyse de l'Information ▸ Ker Lann, France
ENSAI, Lecturer *2006-2007*
- *Teaching Numerical techniques in finance, Copulas and risk measures*

École Nationale de la Statistique et de l'Administration Économique ▸ Malakoff, France
ENSAE, Lecturer *2002-2006*
- *Teaching Non-life Insurance, Reinsurance and Extreme Value*
- *Institute of Actuaries correspondent, Jury for actuarial thesis*

French Federation of Insurers ▸ Paris, France
France Assureurs (ex FFA, FFSA), Statistics department *2001-2002*
- *Publications on Cat Bonds and Insurers Solvency*

AXA General Insurance Hong Kong Limited 安盛保險有限公司 ▸ Hong Kong, China
Pricing and Reserving Actuary *1999-2001*

Exane ▸ Paris, France
Fixed Income Research Department *1998-1999*

Education

Université de Rennes ▸ Rennes, France
Habilitation à diriger des recherches *2016*
- *Contributions to dependence modeling*

Reviewers : N. El Karoui, P. Embrechts & M. Hoffmann
Jury : K. Antonio, D. Florens, J. Garrido, O. L'Haridon & S. Loisel

Katholieke Universiteit Leuven (KU Leuven) ▸ Leuven, Belgium
Doctor in de Wetenschappen Wiskunde - PhD in Applied Mathematics *2006*
- *Dependence structures and limiting results,with applications in finance and insurance*

Supervisors : J. Beirlant & M. Denuit
Jury : J. Dhaene, A.L. Fougères, I. Gijbels, C. Gouriéroux & W. Schoutens

École Nationale de la Statistique et de l'Administration Économique ▸ Malakoff, France
ENSAE, MSc. in statistics & actuarial science *1999*

Université Paris Dauphine ▸ Paris, France
DEA MASE, MSc. in mathematical economics & finance *1999*

Affiliations & Fellowships

Current
CRM (Centre de Recherche Mathématiques de Montréal), Chaire PARI, CRI^{2}GS
Réseau de recherche sur le numérique, Réseau de recherche en sécurité routière du Québec
OBVIA (Observatoire international sur les impacts sociétaux de l'IA ▸), HumanIA

Previous
CREM, GERAD, IRT St Exupery-MILA, CREST, École Polytechnique

Adjunct Professor (professeur associé)
Université Laval ▸ (Québec, Canada) *since 2022*
University of Waterloo ▸ (Ontario, Canada) *since 2020*

Louis Bachelier Fellowship Paris, France
Academic Fellow *since 2021*

Fellow of the (French) Institut des Actuaires — Paris, France
Member of the International Actuarial Association (IAA) — *since 2003*
- *Member of working groups, anticipate IA impacts, big data, enterprise risk management*

Grants

Financial Grants

SCOR Foundation — 300,000€
Fairness of predictive models: an application to insurance markets, PI Single (100%) — *2023-2026*
Newsletter #1

Chaire Thélem/ILB *Data Science and Insurance Fraud Detection* — 10,000€
co-PI, with Marie-Pier Côté (50%) — *2023*

Chaire ACTIONS *BNP-Cardif, Institut des Actuaires & l'Institut Louis Bachelier* — tbc
co-I, PI: Yahia Sahli & Denys Pommeret (5%) — *2024-2026*

AXA Research Fund — 200,000€
Joint research initiative, PI Single (100%) http://jridata.github.io/ — *2020-2022*

Natural Sciences and Engineering Research Council of Canada (NSERC) — $3,000,000
Emerging Infectious Diseases Modelling Initiative (MfPH), Fields Group (2%) — *2020-2022*

MITACS (EY) — $30,000
Insurance and fairness — *2021-2022*

Natural Sciences and Engineering Research Council of Canada (NSERC) — $100,000
NSERC-CRSNG, Discovery Grant, PI Single (100%) — *2019-2025*

Agence Nationale pour la Recherche — 525,000€
ORDINEQ project Ordinal and Multivariate Inequalities (5%) — *2015-2019*

Institut Louis Bachelier — 558,000€
ACTINFO Research Chair, co-PI, with Romuald Élie (50%) — *2015-2018*

PEPS MoMIS, CNRS — 15,000€
co-PI, with Fréderic Giroire (30%) — *2015*

Natural Sciences and Engineering Research Council of Canada (NSERC) — $70,000
NSERC-CRSNG, Discovery Grant, PI Single (100%) — *2012-2014*

Institut Louis Bachelier — 10,000€
Chaire Groupama-Dauphine, Research Grant (100%) — *2010*

Agence Nationale pour la Recherche — 500,000€
AST&Risk Approches spatio-temporelles pour la modélisation du risque (5%) — *2008-2012*

Institut Louis Bachelier — 24,000€
Chaire AXA-ENSAE(100%) — *2010*

Duties

Journal, Books & Association Boards

Canadian Statistical Sciences Institute (CANSSI) — Canada
Member of the Board of Directors — *2022-2025*

Chapman & Hall/CRC Series in Actuarial Science
Series Editor Board — *since 2024*

Journal of Risk and Insurance
Senior Editor — *since 2022*

Annals of Actuarial Science ▸
Guest Editor (Special Issue: Insurance analytics: prediction, explainability and fairness) — *2022-2023*

Risks ▸
Member of the Editorial Board — *since 2019*

Astin Bulletin Editorial Board ▸
Journal of the International Actuarial Association, member of the Editorial Board — *since 2018*

Economics Bulletin
Member of the Editorial Board — *2021-2022*

European Actuarial Journal ▸
Associate Editor — *2014-2022*

Selected recent services

NSERC EG 1508 — Ottawa, Canada
Member of the Mathematics and Statistics (1508) Evaluation Group — *since 2022*

FRQNT Grants — Québec, Canada
Member of the jury (B1/B2/B3-03E), Master, PhD, Postdocs — *2019-2023*

Faculty of Science, UQAM — Montréal, Canada
Member of the Research Committee — *2018-2024*

MSc Program in Mathematics, UQAM — Montréal, Canada
Member of the supervising committee — *since 2021*

Bachelor Program in Actuarial Science, UQAM — Montréal, Canada
Member of the supervising committee — *2018-2021*

Conseil de Faculté, Université de Rennes — Rennes, France
Member of the faculty board — *2016-2018*

France Stratégie - Cabinet du Premier Ministre — Paris, France
Membre du groupe de travail sur la mutualisation des risques climatiques — *2024*

HCÉRES — Paris, France
Haut Conseil de l'évaluation de la recherche et de l'enseignement supérieur
Evalution committee president — *2020*

Data & Code

Insurance Pricing Game — AICrowd
http://pricing-game.com/ with A. Farzanehfar & F. Houssiau (Imperial College) — *2020-2021*

CASDataset 1.0-11 — R
http://cas.uqam.ca/ R package with C. Dutang (ENSIMAG, Grenoble, France) — *since 2015*

Dissemination

Mastodon account @freakonometrics@mastodon.social
Scientific dissemination, ∼ 3,600 followers — *since 2022*

Twitter account @freakonometrics
Scientific dissemination, ∼ 28,100 followers — *2010-2022*

Hypotheses Blog Notebook https://freakonometrics.hypotheses.org/
∼ 1.2 million visitors and 3 million page views per year — *since 2008*

- *Quinquennat Macron : quelle évolution du droit des assurances ?* — *Dalloz Actualité 2022*

- *Rapport Langreney : lutter contre le désengagement des assureurs dans la ...* *Dalloz Actualité 2022*
- *Arthur Charpentier on Freakonometrics, Machine Learning and Big Data* *Economic Rockstar 2018*
- *Les Cat Bonds ont de l'avenir* *France Culture 2018*
- *Coupe du Monde 2018 : des chercheurs de Rennes prévoient la victoire de la France* *RTL 2018*
- *Peut-on vraiment prévoir la probabilité de gagner une élection présidentielle ?* *La Tribune 2017*
- *Le casino des catastrophes* *La Revue Dessinée 2016*
- *How social media usage does and does not predict protests* *Washington Post, 2015*
- *You can vote twice! The many political appeals of proxy votes in France* *Washington Post, 2014*

see https://freakonometrics.github.io/dissemination/ for more details

Interviews

- *IA et assurance* *La Lettre de l'Assurance 2024*
- *Assurances : des collectivités désemparées face aux effets du dérèglement climatique* *Politis 2024*
- *L'indispensabile e controverso uso dell'intelligenza artificiale* *Da Il Sole 24 Ore, 2024*
- *Podcast: IA, biais et éthique en assurance* *Nexialog 2023*
- *Quand les assurances n'assurent plus, un autre effet du changement climatique* *RTS (rts.ch) 2023*
- *Qu' est-ce que l' assurance ? Interview d' un économiste de l' assurance* *Dalloz actualité 2022*
- *Algorithmes : garder le contrôle* *L'Actuariel (44) 2022*
- *Coronavirus : un pic très net de mortalité en France depuis le 1er mars...* *Le Monde 2020*
- *#fakenews : non, l'IA ne peut pas prédire les émeutes* *Sciences & Vie 2019*
- *Les données actuarielles des assureurs, un trésor pour la connaissance client ?* *Les Echos 2018*
- *Les risques en économie : le mécanisme de l'assurance* *It's the Economy, Stupid 2018*

Opinion columns

- *Ni les assureurs ni les gouvernements ne sont préparés à l'augmentation exponentielle...Le Monde 2023*

Selected expertise

International Monetary Fund (IMF) Washington DC, US
Assessing Central Bank Solvency *2021*

International Fund for Agricultural Development (IFAD) United Nations Roma, Italy
NLP and Topic Modeling *2020-2021*

HMG Finance Paris, France
First-In First-Out (FIFO) vs Last-In First-Out (LIFO), perpertual rents *2012*

Academic activities

Recent conferences organization

2nd Workshop of Fairness and Discrimination in Insurance Québec, Canada
with M.-P. Coté (scientific & organization committee) *2024*

5th Insurance Data Science conference Stockholm, Sweden
(scientific committee) *2024*

Networks, Games and Risk Montréal, Canada
with M. Ghossoub (scientific & organization committee) *2023*

5th Insurance Data Science conference London, UK
(scientific committee) *2023*

Modeling of Infectious Diseases Colloquium CRM-Fields, Canada
with B. Nasri & Hélène Guérin (scientific & organization committee) *2023*

Association for the Development of Research in Economics and Statistics Paris, France
Annual Doctoral Conference of ADRES (scientific committee) *2022-2023*

Workshop of Fairness and Discrimination in Insurance Québec, Canada
with M.-P. Coté (scientific & organization committee) *2022*

Emerging Insights in Insurance Statistics BIRS, Banff, Canada
with E. Valdez, J. Cao & H. Jeong (scientific & organization committee) *2022*

MLISTRAL Machine Learning in Insurance, CIRM Marseille, France
(scientific committee) *2022*

4th Insurance Data Science conference Milano, Italy
(scientific committee) *2022*

Journées de la Statistique Lyon, France
SFdS (Société Française de Statistique) Annual Meeting (scientific committee) *2022*

3rd Insurance Data Science conference online
with M. Gesmann, S. Pesenti & A. Tsanakas (scientific & organization committee) *2021*

36th Meeting of the Canadian Econometric Study Group Montréal, Canada
Machine Learning Econometrics, at UQAM (scientific committee) *2019*

Atlantic Causal Inference Conference Montréal, Canada
University McGill (scientific committee) *2019*

2nd Insurance Data Science conference ETH Zürich, Switzerland
with M. Gesmann & A. Tsanakas (scientific committee) *2019*

Workshop on data science for actuarial applications Paris, France
ACTINFO Chair, with Chairs at University CB Lyon (ISFA) *2018*

Workshop on multivariate inequalities Rennes, France
ANR Ordineq, with O. L'Haridon & B. Taroux *2018*

5th R in Insurance conference Paris, France
(scientific committee) *2017*

Selected presentations at conferences

Canadian Econometrics Study Group (CESG) Toronto, Canada
tbc (invited speaker) *2024*

Optimization Days Montréal, Canada
Market Pricing with Reinforcement Learning *2024*

Colloque l'assurance face à ses ruptures (CCIC) Cerisy, France
tbc (invited speaker) *2024*

Workshop on decentralized insurance and risk sharing Chicago, IL, US
Collaborative insurance, unfairness and discrimination (invited speaker) *2024*

27th International Congress on Insurance: Mathematics & Economics Chicago, IL, US
Optimal transport and Wasserstein barycenter for algorithmic fairness *2024*

Optimal Transport Workshop Institut d'Etudes Scientifiques (IES), Cargèse, France
Optimal transport for fairness (invited) *2024*

Journée d'étude sur le blanchiment et la fraude Nîmes, France
L'intelligence artificielle comme instrument de lutte contre le blanchiment (invited) *2024*

6th Insurance Data Science Conference Stockholm, Sweden
Optimal transport for fairness with multiple sensitive attributes *2024*

Actuarial Science Workshop, SSC Annual Conference Carleton Univ., Ottawa, Canada
Optimal transport for fairness, in insurance (invited speaker) *2023*

Foundations and Applications of Decentralized Risk Sharing KU Leuven, Belgium
Risk sharing on irregular networks (invited speaker) *2023*

16th Annual Conference of Thailand Econometric Society Chiang Mai, Thailand
Quantifying discrimination and fairness in predictive models (invited speaker) *2023*

6th International Econometric Conference of Vietnam Thành phố Hồ Chí Minh, Vietnam
Causal inference with optimal transport (invited speaker) *2023*

Montréal AI Symposium (MAIS2022) Montréal, Canada
Insurance, fairness and discrimination *2022*

Workshop on Impacts of Climate Change Fields Institute, Toronto, Canada
Catastrophic risks and insurance (invited speaker) *2022*

Deutsche Gesellschaft für Versicherungs- und Finanzmathematik (DGVFM) Germany
A fair pricing model via adversarial learning (invited speaker) *2022*

20 ans du Master d'Actuariat Universtié Dauphine, Paris
Climate risk and insurance fairness (invited speaker) *2022*

Simulation & IA 2022 Cargèse, Universita di Corsica, France
Simulations and risk (keynote) *2022*

Actuarial Sciences and Applications CIRM, Luminy, France
Fairness in insurance pricing (keynote) *2022*

CMStatistics King's College, London, UK
Modeling Joint Lives within Families (invited speaker) *2021*

Emeritaat Jan Beirlant Leuven, Belgium
Extended Pareto distribution and applications (invited speaker) *2021*

Justice sociale, l'équité et les discriminations dans les systèmes algorithmiques CNRS
Assurance et discrimination (invited speaker) *2021*

IAA (International Actuarial Association) Online Joint Section Colloquium
Individual risks and collective decisions (invited speaker) *2021*

Risque et Incertitude Institut Universitaire de France (IUF)
Risque de pandémie, pertes d'exploitation et incertitudes *2021*

5e Conférence annuelle PANORisk Le Mans, France
Autocalibration and Insurance Pricing (invited speaker) *2021*

SSC (Statistical Society of Canada) Annual Conference Canada
Autocalibration & Premium Calculations (invited session) *2021*

IME (Insurance: Mathematics & Economics) Annual Conference Champaign, Illinois, US
Autocalibration & Premium Calculations (and panel discussion) *2021*

ASTIN Annual Conference Orlando, Florida, US
Autocalibration & Premium Calculations *2021*

MODCOV19-CNRS Paris, France
Modèles épidémiologiques pour analyse coût-efficacité sous incertitude (invited speaker) *2020*

Machine learning for economists and applied social scientists Hallifax, Canada
Machine Learning in Actuarial Science & Insurance (plenary speaker) *2020*

Actuarial and Financial Mathematics Conference Brussels, Belgium
Insurance Pricing in Competitive Markets (invited speaker) *2020*

Online International Conference in Actuarial science and finance Lyon, France
Modeling Joint Lives within Families *2020*

Risk Analytics Conference Chicago, US
Actuarial Pricing and Competition, University of Illinois (keynote speaker) *2019*

UCSB InsurTech Summit Santa Barbara, US
Insurance Pricing in Competitive Markets (invited speaker) *2019*

Natural Catastrophe Economics Workshop Zürich, Switzerland
Assessing Probabilities with Climate Change (invited speaker) *2019*

XXVIIIth International Biometric Conference Barcelona, Spain
Collaborative Genealogical Data in Demography (invited session) *2018*

European R Users Meeting Budapest, Hungary
Collaborative Genealogical Data in Demography (invited speaker) *2018*

Ecole Thématique sur l'Evaluation des Politiques Publiques Aussois, France
Evaluation du prejudice corporel en assurance automobile (invited speaker) *2018*

Big data empirics and policy analysis Bank of England, London, UK
Insurance: Risk Pooling or Price Segmentation (keynote speaker) *2017*

Artificial Intelligence for fintech and insurtech IHP, Paris, France
Insurance Pricing and Competition (invited speaker) *2017*

New challenges in the measurement of economic inequalities Marseille, France
Extended Pareto Models and Incomes (invited speaker) *2017*

Cartostats Université Paris Diderot, France
La Ville en Économie (invited speaker) *2017*

Dependence Modelling with Applications in Finance and Insurance Athens, Greece
Insurance Pricing and Competition (invited speaker) *2017*

Comprendre et Anticiper la Révolution du Numérique en Assurance Caen, France
Assurance et Responsabilité (invited speaker) *2017*

Statistical Learning and Data Science Erasmus University, Rotterdam, Netherlands
Quantiles and Expectiles (invited speaker) *2017*

Sciences XXL INED, Paris, France
Collaborative Data in Genealogy (invited speaker) *2017*

3rd International MACroeconomics workshop (IMAC) Rennes, France
From Micro to Macro (invited speaker) *2016*

Ordinal and Multidimensional Inequalities Montpelier, France
Pareto Models and Incomes (invited speaker) *2016*

Droit des données personnelles Amiens, France
Assurance & RGPD (règlement général sur la protection des données) (invited speaker) *2016*

3rd EAJ Conference (European Actuarial Journal) Lyon, France
Big Data and Insurance (invited speaker) *2016*

International Conference on Applied Business and Economics Nanterre, France
Natural Catastrophes and Governement Intervention *2016*

Big Data : la recherche s'expose Paris, France
Big Data and Insurance (invited speaker) *2016*

Centre for Central Banking Studies Bank of England, London, UK
Big Data and Insurance (keynote speaker) *2016*

Asociación Española de Gerencia de Riesgos y Seguros Barcelona, Spain
Machine Learning and Insurance (keynote speaker) *2016*

Big Data & Environment Buenos Aires, Argentina
Impact of time Granularity on Statistical Modeling (invited speaker) *2015*

IA|BE Summer School Louvain, Belgium
Machine Learning and Insurance (keynote speaker) *2015*

ACP meeting Leuven, Belgium
Big and Small Data in Insurance (invited speaker) *2015*

Journées de Statistiques Lille, France
Probit transformation for nonparametric kernel estimation of the copula density *2015*

22nd International Forecasting Financial Markets Conference Rennes, France
Copulas and Finance *2015*

Insurance & Finance Colloquium Le Mans, France
Risk Measures and Pareto Models *2015*

R in Insurance Conference London, UK
Getting into Bayesian Wizardry... with the eyes of a muggle actuary (keynote speaker) *2014*

SSC annual conference Toronto, Canada
Risk Measures and Pareto Models (invited session) *2014*

Mathematical Finance Days HEC Montréal, Canada
Risk Measures and Pareto Models *2014*

World Social Science Forum (UNESCO) Montréal, Canada
Academic Blogging (invited session) *2013*

Mathematical Finance Days HEC Montréal, Canada
Quantiles Estimation from Heavy Tailed Distribution *2013*

6th R/Rmetrics Summer School on Computational Finance Meielisalp, Switzerland
Actuarial Science with R (invited speaker) *2012*

Journées de la Société Canadienne de Sciences Économiques Mont Tremblant, Canada
Modeling dynamic incentives an application to basketball *2012*

Québec-Ontario Workshop on Insurance Mathematics Montréal, Canada
Quantiles Estimation from Heavy Tailed Distribution *2012*

Mathematical Finance Days HEC Montréal, Canada
Fast Computations on Binomial Trees *2012*

Journées de la Société canadienne de sciences économiques Sherbrooke, Canada
Insurance of Natural Catastrophes When Should Government Intervene ? *2011*

Changement climatique et gestion des risques Lyon, France
Modeling heat-waves: return period for non-stationary extremes *2011*

Journées d'Etudes Statistique Luminy, France
Copulas, Insurance and Risk Measures (invited speaker) *2010*

IA-Lyon Summer School Lyon, France
Solvency II' newspeak 'one year uncertainty for IBNR' : the boostrap approach *2010*

Financial Risks International Forum Paris, France
Multiple Risk Measures *2010*

Assessment and Mitigation of Emerging Risks Paris, France
Emerging risks: an actuarial perspective *2009*

R.I.S.K. Symposium — Paris, France
Incertitude des régimes des retraites — *2009*

Workshop Finance & Insurance — Sao Paulo, Brazil
Estimation of quantile related risk measures (invited speaker) — *2009*

Workshop on Actuarial Science — Belo Horizonte, Brazil
IBNR and quantification of uncertainty — *2009*

7th International Workshop on Rare Event Simulation (RESIM) — Rennes, France
Optimal Reinsurance with ruin probability target — *2008*

Selected talks at academic seminars

Københavns Universitet — *Copenhagen, Denmark, 2024*
Séminaire de modélisation financière de Paris, Université Paris Sorbonne — *Paris, France, 2024*
Groupe de travail ARC (Actuariat et Risques Contemporains), Sorbonne Université — *Paris, France, 2024*
ENS Ker-Lann — *Rennes, France, 2023*
UdeM & CIREQ Econometrics Seminar — *Montréal, Canada, 2023*
SINCLAIR (Saclay INdustrial Collaborative Laboratory for Artificial Intelligence Research) — *Paris, 2023*
Bayes Business School, Actuarial Seminar, City, University of London — *London, UK, 2023*
University of Waterloo, Actuarial and Statistical Seminar — *Waterloo, Canada, 2023*
Séminaire StatQAM — *UQAM, Montréal, Canada, 2023*
ASTIN Reading Group — *Online, 2023*
Séminaire Bachelier — *IHP, Paris, France, 2023*
University of Illinois — *Urbana-Champaign, IL, US, 2022*
Centre interdisciplinaire en modélisation mathématique (CIMMUL) — *Laval, Québec, 2022*
Laws, Institutions and Economics — *Nanterre, Paris, France, 2022*
Intel – Institute of Electrical and Electronics Engineers (IEEE) — *Bengaluru, India, 2021*
Université de Sherbrooke — *Sherbrooke, Canada, 2021*
Institut Louis Bachelier — *Paris, France, 2021*
HEC Montréal, IRE - CREE Seminar — *Montréal, Canada, 2021*
Science Po (TransNum) — *Paris, France, 2020*
University of Connecticut, Actuarial Seminar — *Storrs, CT, US, 2020*
University of New South Wales (UNSW) — *Sydney, Australia, 2020*
Aix-Marseille School of Economics (AMSE) — *Marseille, France, 2020*
European Network for Business and Industrial Statistics (ENBIS) — *Palaiseau, France, 2020*
Paris Machine Learning Group — *Paris, France, 2020*
CMAP, École Polytechnique — *Palaiseau, France, 2020*
AICS — *Toronto, Canada, 2020*
Chaire Pari (Programme sur l'Appréhension des Risques et des Incertitudes) — *Paris, France, 2019*
ESSEC Risk Seminar — *Paris, France, 2019*
University of California, Actuarial & Statistical Seminar — *Santa Barbara, CA, US, 2019*
University of Wisconsin, Risk & Insurance Seminar — *Madison, WI, US, 2019*
University of Waterloo, Actuarial Seminar — *Waterloo, Canada, 2019*
UQAM, LATECE, Computer Science Seminar — *Montréal, Canada, 2019*
Université Laval, Quantact Actuarial Seminar — *Québec, Canada, 2019*
UQAM, Economics Seminar — *Montréal, Canada, 2018*
Telecom ParisTech — *Paris, France, 2018*

Università degli Studi dell'Insubria, Economics Seminar	*Varese, Italy, 2018*
ESSEC Risk Seminar	*Paris, France, 2018*
Université Laval, Economics Seminar	*Québec, Canada, 2018*
University of Michigan, Mathematics Seminar	*Ann Arbor, US, 2017*
Université de Caen, Economics Seminar	*Caen, France, 2017*
Université Paris Diderot, Statistics Seminar	*Paris, France, 2016*
Université Catholique de Louvain	*Louvain, Belgium, 2015*
GERAD, Université de Montréal	*Montréal, Canada, 2014*
Université Laval, Computational Science Seminar	*Quebec, Canada, 2014*
Centro de Investigación en Matemáticas	*Guanajuato, Mexico, 2014*
Universiteit van Amsterdam	*Amsterdam, Netherlands, 2013*
HEC Lausanne, Actuarial Seminar	*Lausanne, Switzerland, 2013*
GeoTop, UQAM	*Montréal, Canada, 2012*
Université Laval, Statistical Seminar	*Québec, Canada, 2011*
Université Laval, Business School Seminar	*Québec, Canada, 2011*
Université Laval, Actuarial Seminar	*Québec, Canada, 2011*
HEC Montréal	*Montréal, Canada, 2010*
McGill University, Statistical Seminar	*Montréal, Canada, 2010*
Université de Rennes, Economics Seminar	*Rennes, France, 2010*
ESSEC Risk Seminar	*Paris, France, 2009*
Université de Montpellier	*Montpellier, France, 2009*
Université de Brest	*Brest, France, 2009*
Université de Rennes	*Rennes, France, 2008*
Université de Nantes	*Nantes, France, 2008*
Université Pierrre & Marie Currie	*Paris, France, 2008*
Universiteit van Amsterdam	*Amsterdam, Netherlands, 2008*
Université de Toulouse 1	*Toulouse, France, 2007*
Imperial College	*London, UK, 2007*
PSE ENS Cachan	*Paris, France, 2007*
Université de Grenoble	*Grenoble France, 2007*
Université Paris Nanterre	*Nanterre, France, 2007*
Université de Compiègne	*Compiègne, France, 2007*
Universidad de Valparaíso	*Valparaíso, Chile, 2006*
ENSAI	*Rennes, France, 2006*
PSE Paris Sorbonne	*Paris, France, 2006*
Katholieke Universiteit Leuven	*Leuven, Belgium, 2006*
Institut de mathématiques appliqués	*Angers, France, 2006*

Selected talks and presentations at practitioners seminars

Workshop on Trustworthy AI — Montréal, Canada
Insurance, discrimination and fairness — *2024*

Actuarial Contact Program, ACP – KUL — Leuven, Belgium
From contemplative to predictive modeling in actuarial science and risk management — *2024*

Groupe de Travail 'Mutualisation des risques', France Stratégie — Paris, France
Member of group, various participations and presentations — *2024*

SCOR monthly webinar — Paris, France (online)
Scope and limits of artificial intelligence — *2024*

TD General Insurance Pricing Seminar — Montréal, Canada
Fairness and Ethics in Actuarial Pricing — *2024*

Akur8 Technical Seminar — Paris, France (online)
Ethics in Actuarial Pricing, and `equipy` — *2024*

Chaire Thélem / ILB — Orléans, France
Fairness and Ethics in Actuarial Pricing — *2024*

Data Talk Generali — Paris, France
Fairness and Ethics in Actuarial Pricing — *2024*

Colloque Actuariat Francophone — Paris, France
La mutualisation et l'inclusion à l'épreuve de la segmentation (invited speaker) — *2023*

TD Insurance Data Analytics Seminar — Montréal, Canada
Fairness and Ethics in Actuarial Pricing — *2023*

Intact Seminar — Montréal, Canada
Causal Models for Discrimination in Insurance — *2023*

Akur8 Pricing Seminar — Paris, France
Fairness and Ethics in Actuarial Pricing — *2023*

Conference Data Science Institute — Montréal, Canada
Les enjeux des risques climatiques en assurance de dommages — *2023*

Table ronde sur la pratique actuarielle, AG2R — Paris, France
Perspective de la pratique actuarielle — *2023*

3e Colloque International de l'Actuariat Francophone — Paris, France
La mutualisation et l'inclusion à l'épreuve de la segmentation — *2023*

Journée d'étude AIvidence — Paris, France
Machine Learning with Fairness Contraints — *2023*

Data Science Webinar, Institut du Risk Management — Paris, France
Machine Learning with Fairness Contraints — *2023*

Service Juridique France Assureurs — Paris, France
Insurance & 'high-risk' AI systems - EU AI Act — *2023*

Comité Corporel de France Assureurs — Paris, France
To Sue or not to Sue — *2023*

Colloque SCOR-Institut des Actuaires — Paris, France
Assurance collaborative, théorie des graphes et actuariat — *2022*

Beneva (La Capitale & SSQ Assurance) — Québec, Canada
Competitions in insurance markets — *2022*

Optimind Webinar Paris, France
La non-discrimination dans l'usage des données et les modèles actuariels *2022*

Cov&Data, Covea (MAAF, MMA & GMF) Paris, France
Interpretability of predictive models *2022*

100% Data Science, Institut des Actuaires Paris, France
Are you a probability ? *2022*

DataDay MAIF Niort, France
Data and climate change *2022*

Casualty Actuarial and Statistical Task Force (CASTF), NAIC Washington, DC, USA
An introduction to Bayesian models *2022*

Journées actuarielles - Actuarial Days - Groupama Paris, France
Flood and subsidence *2022*

Chaire DIALog (digital insurance and long term risk) Paris, France
Insurance, fairness and discrimination *2022*

Institut des Actuaires & Institut Louis Bachelier Paris, France
Vision bayésienne de l'apprentissage *2022*

ASTIN – International Actuarial Association Ottawa, Canada
Insurance: discrimination and fairness *2022*

Journée de l'actuariat IARD (Institut des Actuaires) Paris, France
Machine Learning : de la promesse à la réalité (table ronde) *2022*

IVADO (Communauté de partique) Montréal, Canada
Insurance: biases, discrimination & fairness *2022*

COV&Data Conference: IA de confiance Paris, France
Insurance: biases, discrimination & fairness *2022*

AXA Actuarial Conference # 62 Paris, France
Catastrophic Climate risks and Insurance *2022*

100% Data Science, Institut des Actuaires Paris, France
Modeling subsidence risk in France *2021*

Institut Louis Bachelier & Institut des Actuaires Paris, France
Assurance collaborative : Théorie des graphes et Actuariat *2021*

TD Insurance Montréal, Canada
Insurance pricing in competitive markets *2020*

Autorité de contrôle prudentiel et de résolution (ACPR) Paris, France
Insurance pricing in competitive markets *2019*

SCOR, Rencontres Mutualistes Beaune, France
Insurance pricing in competitive markets *2018*

AON Benfield, Journées du marché Paris, France
Insurance and climate *2018*

Data science conference, Generali Paris, France
Machine learning in insurance *2016*

Institut des Actuaires, Big Data Semimar Paris, France
Machine learing in insurance *2015*

Society of Actuaries, Predictive Modeling Seminar Chicago, IL, US
From Generalized Linear Models to Trees *2013*

Desjardins Reserving Seminar Montréal, Canada
One-year uncertainty *2011*

Milliman Reserving Seminar Paris, France
One-year uncertainty *2010*

Reviewer activities

Peer reviewed journals

Stochastic Environmental Research and Risk Assessment; Theory and Decision; Insurance: Mathematics & Economics; Journal of Banking & Finance; The Canadian Journal of Statistics; Journal of Computational and Graphical Statistics; Journal of Multivariate Analysis; Communications in Statistics: Theory and Methods; Quantitative Finance; Journal of the American Statistical Association; TEST; Asia-Pacific Journal of Financial Studies; Statistics and Decision; Kybernetika; European Journal of Finance; Mathematics and Financial Economics; Statistica Sinica; Extremes; Physics and Chemistry of the Earth; Computational Statistics; Geneva Papers on Risk and Insurance; Bernoulli; Water Resources; Statistics & Probability Letters; Mathematical Finance; Journal of Risk; Journal of Hydrology; Scandinavian Actuarial Journal; Advances in Statistical Analysis; European Actuarial Journal; Metrika; Journal of Statistical Planning and Inference; Annals of Applied Statistics; Constructive Approximation; Econometric Reviews; Annals of Economics and Statistics; Annals of Actuarial Science; Journal of the Royal Statistical Society –Series B; Mathematics of Social Sciences; Economic Theory; ASTIN Bulletin (Journal of the International Actuarial Association); Journal of Statistical Software; Journal of Population Economics; Risks; Journal of Zhejiang University - Science A; Journal of Time Series Analysis; European Journal of Operation Research; Econometrica; Dependence Modeling; Journal of Economic Behavior & Organization; Annals of Actuarial Science; Entropy; Sustainability; Risk Analysis; Journal of Statistical Computation and Simulation, North American Actuarial Journal; Global Food Security; IEEE Transactions on Information Theory; Remote Sensing; Stochastic Processes & Applications, Journal of Mathematical Economics; Journal of Risk and Insurance; PLOS One; Journal of Theoretical Biology; Bulletin de l'Association Mathématique du Québec; International Journal of Mathematics in Operational Research; Artificial Intelligence Review; Journal of Economic Inequality; Patterns; Systems and Control Letters; Annals of Operations Research; Natural Hazards and Earth System Sciences; EGUsphere; Information Sciences; International Journal of Information Management Data Insight; Big Data & Society; Measurement (Journal of the International Measurement Confederation); ACM Computing Surveys; Information Sciences; Finance Research Letters; Neurocomputing; Management Science

Conferences / Program Committee (PC) member

ECML-PKDD

Books

MIT Press, Springer Verlag, CRC Press, SAGE, Economica, Cambridge University Press

Tenure review

UC Santa Barbara, HEC Lausanne, Heriot-Watt University, University of Madison Wisconsin

Grants review

ANR (Agence Nationale pour la Recherche, France), AXA Research Fund, FNR Luxembourg CORE program (Luxembourg), FRQNT (Fonds de Recherche du Québec - Nature & Technologie, Canada), F.R.S.-FNRS (Fonds de la Recherche Scientifique, Belgique), MICTACS (Mathematics of Information Technology and Complex systems, Canada), NSA (National Security Agency - Mathematical Sciences Grant Program - U.S.A.), NSERC (Natural Sciences and Engineering Research Council, Canada), IVADO (Institut de valorisation des données, Canada), ANRT (Agence Nationale Recherche & Technologie, France), Fondation SCOR, ISF (Israel), NWO (Nederlandse organisatie voor wetenschappelijk onderzoek), RGC (Hong Kong Research Grants Council - 研究资助局), OBVIA (Observatoire international sur les impacts sociétaux de l'IA et du numérique).

Member of the jury (B1/B2/B3-03E) 2019-3023 — *FQRNT (Quebec) Canada*
Mathematics and Statistics Evaluation Group (EG 1508) 2022-2025 — *NSERC (Canada)*

Selected research visits and invitations (> 1 week)

University of California — Santa Barbara, CA, US
visiting Mike Ludkovski — *2019*

Universitat de Barcelona — Barcelona, Spain
visiting Montserrat Guillen — *2018*

Università degli Studi dell'Insubria — Varese, Italy
visiting Raffaello Seri — *2018*

Harvard University — Cambridge, US
visiting Christine Choirat & Pierre Jacob — *2017*

Universitat de Barcelona — Barcelona, Spain
visiting Montserrat Guillen — *2016*

Centro de Investigación en Matemáticas — Guanajuato, Mexico
visiting Victor Rivero — *2014*

Universidade Federal de Minas Gerais — Belo Horizonte, Brazil
visiting Renato Assunção — *2013*

Raphaël Suire — *Université de Nantes, France 2024*
Fei Huang — *UNSW, Sydney, Australia, 2024*
Laurence Barry — *Chaire PARI, 2024*
Stéphane Loisel — *CNAM Paris, France, 2024*
Mario Ghossoub — *Waterloo University, Canada, 2022, 2023*
Ewen Gallic — *Université Aix-Marseille, France, 2023-2024*
Jean-Michel Loubes — *Université Paul Sabatier, Toulouse, France, 2022*
Andreaa Enache (Covid-19) — *Stockholm School of Economics, Sweden, 2020-2021*

Master students (since 2015)

Noé Bosc-Haddad — *Ecole Centrale, Paris, France, 2024*
Aña María Patrón Piñerez — *Universidad de los Andes, Colombia, 2024*
Julien Siharath — *Université de Rennes, France, 2024*
Florent Crouzet — *École Polytechnique, France, 2024*
Suzie Grondin — *ENSAE, Paris, France, 2023*
Gaspard Ichas — *ENSAI, Rennes, France, 2023*
Nathan Herzhaft — *École Polytechnique, France, 2023*

Kim Anh Lê — *Ludwig Maximilian University of Munich, Germany, 2023*
Olivier Côté — *(co-supervision) Université Laval, Québec, Canada, 2023*
Martin de Closets — *École Polytechnique, France, 2022*
Franklin Feukam Kouhoue (Prix des Sciences du Risque Optimind) — *ENSAE, Paris, France, 2022*
Rawanda Matar — *UQAM, Canada, 2021*
Menna Hassan — *(co-supervision) American University, Cairo, Egypt, 2021*
Thomas Carpentier — *Université de Lyon, France, 2021*
Lariosse Kouakou — *Université de Brest, France, 2020*
Elie Odin — *ENS (École Normale Supérieure) Ker Lann, France, 2020*
Apollinaire Barme — *ENSAE, Paris, France, 2019*
Molly James — *Université de Brest, France, 2019*
Enora Belz — *Université de Rennes, France, 2017*
Clothilde Davesne — *ENSAE, Paris, France, 2015*
Julie Viard — *Université de Rennes, France, 2015*

PhD Students supervision (3 ongoing, 5 completed)

Agathe Fernandes Machado
Fairness and causal models, co-supervised with E. Gallic — *2023-today*

Olivier Côté
Predictive Models, Interpretability and Explainability, co-supervised with M.P. Côté (Laval) — *2023-today*

Hongda Hu
Bandits and risks, co-supervised with M. Ghossoub & A. Schied (Waterloo) — *2020-today*

Samuel Stocksieker
Unbalanced Data, co-supervised with D. Pommeret (Université de Lyon) — *2020-2024*

Philipp Ratz
Constraints in Fair Estimation and Games — *2021-2024*

Enora Belz — now Excelcio
Etude de données agrégées et mesures d'inégalités — *2016-2021*

Antoine Ly — now CDSO at SCOR
Algorithmes de machine learning en assurance, co-supervised with R. Élie — *2015-2019*

Amadou Barry — now INRS
Régression expectile pour données longitudinales, co-supervised with K. Oualkacha — *2013-2019*

PhD Students invitations

Charles Condevaux (Université de Nîmes, France) Gilles Hacheme (AMSE, France) Loann Desboulets (AMSE, France) Bertille Picard (AMSE, France), Samira Ait Mekideche (University of Béjaïa, Algeria), Fallou Niakh (ENSAE-Polytechnique, France)

Post-doctoral supervision (2 ongoing, 5 completed)

Arsene-Brice Zotsa Ngoufack
Generative models, co-supervised with H. Guérin — *(exp) 2024-2025*

Marouane Il-Idrissi
Interpretability and fairness, co-supervised with M.P. Côté — *(exp) 2024-2026*

François Hu — now Milliman R&D,
Fairness, co-supervised with M. Moralès — *2022-2024*

Félix Foutel Rodier — now Oxford University,
Mathematical models for pandemics, co-supervised with H. Guérin — *2021-2022*

Amirouche Benchallal — now Natural Resources Canada
Extracting information from satellite pictures, with Y. Bouroubi — *2021-2022*

Ewen Gallic — now Aix-Marseille Univ. (AMSE)
Extracting information from collaborative genealogical data — *2017-2018*

Arnaud Goussebaïle — now ETH Zürich
Insurance and prevention of natural catastrophes — *2016-2017*

Jury (PhD & Habilitation à Diriger des Recherches)

Christophe Dutang (Université Paris Dauphine); Nabil Kazi-Tani (Université de Lyon)

Marouane Il Idriss (Université de Toulouse); Francis Duval (UQAM, Montréal); Eric Vansteenberghe (Paris School of Economics); Dafnis Krasniqi (Université Paris-Sorbonne); Bertille Picard (Université d'Aix-Marseille); Lucas de Lara (Université de Toulouse); Mohamed Ouhourane (UQAM, Montréal): Pierre Chatelain (Université de Lyon); Antoine Heranval (Sorbonne Université); Geoffrey Ecoto (Sorbonne Université); Guillaume Boglioni Beaulieu (UNSW, Sydney); Mohamed Ouhourane (UQAM, Montréal); François Hu (Institut Polytechnique, Paris); Sander Devriendt (KU Leuven); Meryem Yankol Schalck (Université Paris Nanterre); Debora Zaparova (Université de Strasbourg); Loann Desboulets (Aix-Marseille School of Economics); Lenin Arango Castillo (Queen's University); Pierrick Piette (Université de Lyon 1); Oscar Alberto Quijano Xacur (Concordia University, Montréal); Yang Jiao (Telecom SudParis); Edouard Debonneuil (Université de Lyon 1); Alexandre Godzinski (EHESS, PSE, Paris); Fattouma Souissi (Université de Montpellier); Arnaud Goussebaïle (École Polytechnique); Leo Guelman (Universitat de Barcelona); Przemyslaw Sloma (Université Paris VI); Mathieu Pigeon (UC Louvain); Julien Tomas (Uv Amsterdam); Aymric Kamega (Université Lyon I); Tarek Zari (Université Paris VI); Meriem Maatig (Université Paris II Assas); Noureddine Ben Lagha (Université Paris II Assas)

Jury (MSc)

Mélanie Raymond, Jordi Rolls Teikeu Jatsa, Francis Duval, Roxane Turcotte, Olivier Binette, Julie Bélanger, Alexandre Roy-Gaumond, Paul Mathivon

Jury (Prices)

Journal of Risk and Insurance
Jury for Robert I. Mehr Award — *2023*

Annals of Economics and Statistics
Jury for the best young researcher paper — *2021,2022*

Scor Actuarial Price
Jury for MSc and PhD Best Thesis Prices *2023,2024*

Recruiting committees

CNRS IA-SHS chaire professeur junior, CPJ *2022*
Aix-Marseille School of Economics, PR *2022*
Aix-Marseille School of Economics, MCF *2018*
Université Lyon 1-ISFA, MCF *2016*

Publications

over 3000 citations (G, June 2024), 45 published papers in peer reviewed journals, 6 published papers in peer reviewed international conferences, 8 books, 49 papers in French (including dissemination papers), 16 chapters in textbooks, and 26 working papers.

Published papers in peer reviewed journals

1. S.Stocksieker*, D.Pommeret & A.Charpentier (2024). Generalized Oversampling for Learning from Imbalanced datasets and Associated Theory: Application in Regression, *Transactions on Machine Learning Research*, soon arXiv:2308.02966

2. M.Moriah*, F.Vermet & A.Charpentier (2024). Measuring and Mitigating Biases in Motor Insurance Pricing. *European Actuarial Journal*, soon arXiv:2311.11900

3. L.Barry & A.Charpentier (2023). Melting Contestation: Insurance Fairness and Machine Learning, *Ethics and Information Technology* 10.1007/s10676-023-09720-y

4. A.Barry* , K.Oualkacha & A.Charpentier (2023). Alternative fixed-effects panel model using weighted asymmetric least squares regression, *Statistical Methods & Applications* 10.1007/s10260-023-00692-3

5. L.Barry & A.Charpentier (2022) L'équité de l'apprentissage machine en assurance. *Statistiques & Société*,

6. A.Charpentier & E.Flachaire (2022). Oaxaca-Blinder decomposition of changes in means and inequality: A simultaneous approach, *Economics Bulletin*, to appear,

7. R.Bigot, A.Cayol & A.Charpentier (2022) Risque de pandémie, pertes d'exploitation et incertitudes des garanties assurantielles. *Revue Responsabilité civile et Assurances*

8. A.Charpentier & E.Flachaire (2022). Pareto Models for Top Incomes and Wealth. *Journal of Economic Inequality*, **20** doi:10.1007/s10888-021-09514-6 .

9. A.Charpentier, M. James*& H. Ali (2021). Predicting Drought and Subsidence Risks in France, *Natural Hazards and Earth System Sciences*, **22**, 2401–2418, doi:10.5194/nhess-2021-214

10. A.Charpentier, M.Denuit & J.Trufin (2021). Autocalibration and Tweedie-dominance for Insurance Pricing with Machine Learning. *Insurance: Mathematics and Economics*, **101**, 485–497, 10.1016/j.insmatheco.2021.09.001

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*: graduate student; +: post doc fellow

11. A. Barry⋆, A.Charpentier & K. Oualkacha (2022) A new GEE method to account for heteroscedasticity, using asymmetric least-square regressions. *Journal of Applied Statistics*, **49**, 3564–3590, doi:10.1080/02664763.2021.1957789

12. A.Charpentier, R.Élie & C.Remlinger⋆ (2021) Reinforcement Learning in Economics and Finance. *Computational Economics*, doi:10.1007/s10614-021-10119-4

13. A.Charpentier, L.Barry & M.James⋆ (2022) Insurance against Natural Catastrophes: Balancing Actuarial Fairness and Social Solidarity. *Geneva Papers on Risk & Insurance*, **47**, 50–78, doi:10.1057/s41288-021-00233-7

14. A.Charpentier, S.Mussard & T.Ouraga⋆ (2021) Principal Component Analysis: A Generalized Gini Approach. *European Journal of Operational Research*, **294** doi:10.1016/j.ejor.2021.02.010

15. A.Charpentier, R.Élie, M.Laurière+ & V.C.Tran (2020) COVID-19 pandemic control: balancing detection policy and lockdown intervention under ICU sustainability. *Mathematical Modelelling of Natural Phenomena* doi:10.1051/mmnp/2020045

16. L.Barry & A.Charpentier (2020) Personalization as a Promise: Can Big Data Change the Practice of Insurance?. *Big Data & Society*. doi:10.1177/2053951720935143

17. A.Charpentier & E.Gallic+ (2020) Can historical demography benefit from the collaborative data of genealogy websites?. *Population*, doi:10.3917/popu.2002.0391

18. A.Charpentier & E.Gallic+ (2019) Using collaborative genealogy data to study migration: a research note. *The History of the Family*, doi:10.1080/1081602X.2019.1641130, poster

19. A.Charpentier, N.Ka⋆, SMussard & O.H. Ndiaye (2019) Gini Regressions and Heteroskedasticity. *Econometrics*, 7, doi:10.3390/econometrics7010004

20. A.Charpentier, E.Flachaire & A.Ly⋆ (2018) Econometrics and Machine Learning. *Economics & Statistics*, doi:10.24187/ecostat.2018.505d.1970

21. A.Charpentier & B.Coulmont (2018) We are not alone ! (at least, most of us aren't) *Significance*, doi:10.1111/j.1740-9713.2018.01108.x

22. A.Charpentier, A David⋆ & R.Élie (2017) Optimal Claiming Strategies in Bonus Malus Systems and Implied Markov Chains. *Risks*, doi:10.3390/risks5040058

23. A.Charpentier & M.Pigeon (2016) Macro vs. Micro Methods in Non-Life Claims Reserving (an Econometric Perspective). *Risks*, 4: 1-18, doi:10.3390/risks4020012

24. G.Geenens, A.Charpentier & D.Paindaveine (2017) Probit transformation for nonparametric kernel estimation of the copula density. *Bernoulli* doi:10.3150/15-BEJ798

25. A.Charpentier, A.Galichon & M.Henry (2016) Local Utility and Multivariate Risk Aversion. *Mathematics of Operations Research*, 41: 466-476 doi:10.1287/moor.2015.0736

26. A.Charpentier & E.Gallic⋆ (2016) Kernel density estimation based on Ripley's correction. *Geoinformatica*, 20: 95-116, 2016 doi:10.1007/s10707-015-0232-z

27. A.Charpentier & E.Flachaire (2015) Log-transform kernel density estimation of income distribution. *L'Actualité Economique*, 91 :141-149, doi:10.7202/1036917ar

28. C.Tavéra, J.-C.Poutineau, J.-S.Pentecôte, I. Cadoret-David, A.Charpentier, C.Guéguen, M.Huchet-Bourdon, J.Licheron⋆ & G.L'Oeillet⋆ (2015) The "Mother of All Puzzles" at thirty: a meta-analysis. *International Economics*, 141 :80-96, doi:10.1016/j.inteco.2015.01.001

29. M.T.Bastos, D.Mercea & A.Charpentier (2015) Tents, Tweets, and Events: The Interplay Between Ongoing Protests and Social Media. *Journal of Communication*, 65: 320–350, doi:10.1111/jcom.12145

30. A.Charpentier & B.Le Maux (2014) Natural catastrophe insurance: How should the government intervene?. *Journal of Public Economics*, 115: 1-17, doi:10.1016/j.jpubeco.2014.03.004

31. A.Charpentier, M.Durand⋆(2015) Modeling earthquake dynamics. *Journal of Seismology*, 19: 721-739, doi:10.1007/s10950-015-9489-9

32. A.Charpentier, A.-L.Fougères, C.Genest & J.G.Nešlehová (2014) Multivariate Archimax copula. *Journal of Multivariate Analysis*, doi:10.1016/j.jmva.2013.12.013

33. A.Charpentier & S.Mussard (2011) Income Inequality Games. *Journal of Economic Inequality*, 9: 529–554, 20 doi:10.1007/s10888-011-9184-1

34. A.Charpentier (2011) On the return period of the 2003 heat wave. *Climatic Change*, 109: 245–260, doi:10.1007/s10584-010-9944-0

35. A.Charpentier & A.Oulidi+(2010) Beta kernel quantile estimators of heavy-tailed loss distributions. *Statistics and Computing*, 20: 35–55, doi:10.1007/s11222-009-9114-2

36. A.Charpentier & A.Oulidi+(2009) Estimating allocations for value-at-risk portfolio optimization. *Mathematical Methods of Operations Research*, 69: 395, doi:10.1007/s00186-008-0244-7

37. A.Charpentier & J.Segers (2009) Tails of multivariate Archimedean copulas. *Journal of Multivariate Analysis*, 100: 1521–1537, 2009 doi:10.1016/j.jmva.2008.12.015

38. A.Charpentier & D. Sibaï⋆(2009) Dynamic flood modeling: combining Hurst and Gumbel's approach. *Environmetrics*, 20: 32–52, doi:10.1002/env.909

39. A.Charpentier (2008) Insurability of climate risks. *The Geneva Papers on Risk and Insurance*, 33: 91–109, doi:10.1057/palgrave.gpp.2510155

40. A.Charpentier (2008) Dynamic dependence ordering for Archimedean copulas and distorted copulas. *Kybernetika*, doi:10338.dmlcz/135890

41. A.Charpentier & J.Segers (2008) Convergence of Archimedean copulas. *Statistics and Probability Letters*, doi:10.1016/j.spl.2007.07.014

42. A.Charpentier & J.Segers (2007) Lower tail dependence for Archimedean copulas: Characterizations and pitfalls. *Insurance: Mathematics and Economics*, doi:10.1016/j.insmatheco.2006.08.004

43. A.Charpentier & A.Juri (2006) Limiting dependence structures for tail events, with applications to credit derivatives. *Journal of Applied Probability*, doi:10.1239/jap/1152413742

44. J.-C.Boüette⋆, J.-F.Chassagneux⋆, D.Sibaï⋆, R.Terron⋆& A.Charpentier (2006) Wind in Ireland: long memory or seasonal effect?. *Stochastic Environmental Research and Risk Assessment*, doi:10.1007/s00477-005-0029-y

45. A.Charpentier (2006) Actuariat et data mining: prise en compte des dépendances. *Revue des Nouvelles Technologies de l'Information*, isbn:978-2-85428-794-3

Published papers in peer reviewed conferences

46. S.Stocksieker[*], D.Pommeret & A.Charpentier (2024). Boarding for ISS: Imbalanced Self-Supervised: Discovery of a Scaled Autoencoder for Mixed Tabular Datasets. *International Joint Conference on Neural Networks* (IJCNN'24) - *IEEE World Congress on Computational Intelligence* (IEEE WCCI 2024) arXiv:2403.15790

47. F.Hu[+], P.Ratz[*] & A.Charpentier (2024). A Sequentially Fair Mechanism for Multiple Sensitive Attributes. *38th Annual AAAI Conference on Artificial Intelligence* (AAAI 2024), arXiv:2309.06627, `equipy` package, and poster

48. A.Charpentier, F.Hu[+], & P.Ratz[*] (2023) Mitigating Discrimination in Insurance with Wasserstein Barycenters. *3rd Workshop on Bias and Fairness in AI* (BIAS 2023), arXiv:2306.12912, poster

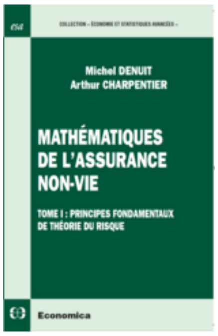
49. F.Hu[+], P.Ratz[*] & A.Charpentier (2023). Fairness in Multi-Task Learning via Wasserstein Barycenters. *Machine Learning and Knowledge Discovery in Databases: Research Track* (ECML/PKDD 2023) 10.1007/978-3-031-43415-0_18, poster

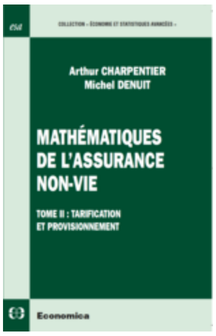
50. S.Stocksieker[*], A.Charpentier & D.Pommeret (2023). Data Augmentation for Imbalanced Regression. *Proceedings of The 26th International Conference on Artificial Intelligence and Statistics* (AISTATS 2023), 7774–7799, PMLR 206:7774-7799, , , poster

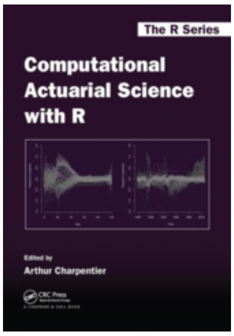
51. A.Charpentier & L.Barry (2022). The fairness of machine learning in insurance. *Montréal AI Symposium* (MAIS 2022), arXiv:2205.08112, poster

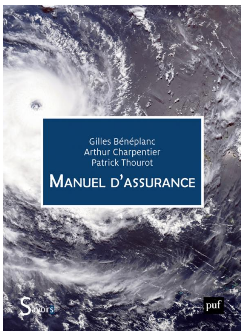
52. A.Charpentier (2008). Pricing catastrophe options in incomplete markets. *Actuarial and Financial Mathematics Conference*, Gand, Belgium, 19–31

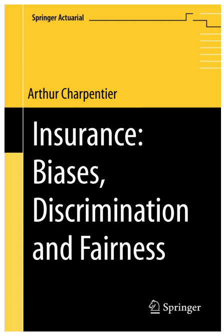
Books











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63. A.Charpentier (2023). Est-il nécessaire (et utile) d'être en guerre contre tout ? *Risques*
64. A.Charpentier & N.Marescaux (2023). L'incertitude empêche-t-elle de prendre des décisions ? *Risques*
65. A.Charpentier (2023). La société du "*bullshit*", *Risques*
66. A.Charpentier & L.Barry (2023). Y-a-t-il une discrimination contre les pauvres ? *Risques*
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69. A.Charpentier (2022). Y-a-t-il des morts acceptables ? ou comment finir une pandémie. *Risques*
70. A.Charpentier (2022). Modéliser la contagion. *Risques*
71. A.Charpentier (2022). Le tabou de l'exponentielle. *Risques*
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73. A.Charpentier & E.Gallic (2021). Intelligence collective et données. *Risques*
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93. Antonio, K. & A.Charpentier (2017) La tarification par genre en assurance, corrélation ou causalité ?. *Risques*, 110,

94. A.Charpentier (2016) Les dérives du principe de précaution. *Risques*, 108,

95. A.Charpentier & T. Renault[*] (2016). Les promesses de la blogosphère économique. *L'Écomomie Politique*, 72:4, 10.3917/leco.072.0080

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97. A.Charpentier (2016) Fibonacci, les lapins, le nombre d'or et les calculs actuariels. *Risques*, 106,

98. A.Charpentier (2016) La guerre des étoiles: distinguer le signal et le bruit. *Risques*, 105,

99. A.Charpentier, A.Eyraut-Loisel, A. Hannart, & J. Tomas[+] (2015) Changement Climatique et Assurance. *Variances*, 54,

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Chapters & Participations

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110. A.Charpentier (2023) Quantifying fairness and discrimination in predictive models. *in* Machine Learning for Econometrics and Related Topics, Kreinovich, SriboonchiNa & Yamaka Eds, Springer Nature, doi:10.1007/978-3-031-43601-7_3

111. A.Charpentier (2021) Changement Climatique et Assurance. *in* Le livre vert, E. Challier Ed., Pommier Éditions. ISBN:978-2746523609

112. A.Charpentier & R.Bigot (2021) Le rôle des actuaires. *in* Le droit des assurances en tableaux, R.Bigot & A.Cayol Ed., Ellipses Éditions. ISBN:978-2340040045

113. A.Charpentier & E.Flachaire (2020) Pareto Models for Risk Management *in* Recent Econometric Techniques for Macroeconomic and Financial Data, G. Dufrénot & T. Matsuki Ed., Springer Verlag, doi:10.1007/978-3-030-54252-8_14

114. A.Charpentier & M.Denuit (2020) On limits for machine learning algorithms in insurance *in* Insurance data analytics, F.Planchet & C.Y.Robert Ed., Economica. ISBN:978-2717871371

115. A.Charpentier (2020) Prévision avec des copules en finance *in* Prévisions en Finance, Charles, Darne & Ferrara Eds., Economica hal:01151233 ,

116. D. Cocteau-Senn, A.Charpentier & R. Bigot (2019) La protection des données personnelles en assurance : dialogue du juriste avec l'actuaire *in* Regards sur le nouveau droit des données personnelles, Netter, E., Ndior, V., Puyraimond, J.F., Vergnoll, S. Eds. Ceprisca hal:02357967 ,

117. A.Charpentier (2018) Central Limit Theorem *in* The SAGE Encyclopedia of Educational Research, Measurement, and Evaluation, B. Frey Ed., SAGE. doi:10.4135/9781506326139.n105

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Working Paper & in Progress

125. A.Fernandes-Machado⋆, F.Hu+, P.Ratz⋆, E.Gallic & A.Charpentier (2024). Geospatial Disparities: A Case Study on Real Estate Prices in Paris. arXiv:2401.16197

126. A.Fernandes Machado⋆, A.Charpentier, E.Flachaire, E.Gallic & F.Hu+ (2024). From Uncertainty to Precision: Enhancing Binary Classifier Performance through Calibration arXiv:2402.07790

127. F.Hu+, P. Ratz⋆A.Fernandes Machado⋆, S.Grondin⋆& A.Charpentier (2024). `EquiPy`: Sequential Fairness using Optimal Transport in Python. soon

128. O.Côté⋆, M.P.Côté & A.Charpentier (2024). A Fair price to pay: exploiting directed acyclic graphs for fairness in insurance. ssrn:4709243 SSRN,

129. A.Charpentier & R.Suire (2024). Insurance, Big Tech & Insurtech. soon

130. S.Stocksieker⋆, D.Pommeret & A.Charpentier (2023). Data Augmentation for Various Imbalanced Datasets. soon

131. F.Hu+, P.Ratz⋆ & A.Charpentier (2023). Fairness Explainability using Optimal Transport with Applications in Image Classification arXiv:2308.11090

132. X.Vamparys⋆& A.Charpentier (2024). Artificial Intelligence and Personalization of Insurance: Failure or Delayed Ignition? *Chaire Pari Working Paper 32*

133. X.Vamparys⋆& A.Charpentier (2023). Intelligence artificielle et individualisation des garanties en assurance: échec ou retard à l' allumage ?*Chaire Pari Working Paper 32*

134. F.Hu+, P.Ratz⋆ & A.Charpentier (2023). Parametric Fairness with Statistical Guarantees. arXiv:2310.20508

135. A.Charpentier, A.Benchallal+, G.A.Fotso Kamga⋆& Y.Bouroubi (2023). Fire occurrence prediction over the province of Quebec using machine learning algorithms and geospatial datasets. soon

136. F.Foutel-Rodier+, A.Charpentier & H.Guérin (2023). Optimal Vaccination Policy to Prevent Endemicity: a Stochastic Model. ArXiv:2306.13633

137. H.Hu*, A.Charpentier, M. Ghossoub & A. Schied (2022) Multiarmed Bandits Problem Under the Mean-Variance Setting. arXiv:2212.09192

138. M.Hassan*, A.Charpentier & N. Sakr (2022). Government Intervention in Catastrophe Insurance Markets: A Reinforcement Learning Approach. arXiv:2207.01010

139. A.Charpentier, Q.S.Guo+ & M.Ludkovski (2021) Patterns and Anomalies of Loss Development in P&C Insurance Market.

140. E.Belz*, A.Charpentier, & P.Y. Geoffard (2024) To sue or not to sue.

141. V.Grari* , A.Charpentier, S. Lamprier & M. Detyniecki (2021). A fair pricing model via adversarial learning. arXiv:2202.12008

142. A.Charpentier, L.Kouakou, M.Löwe, P.Ratz & F.Vermet (2021). Collaborative Insurance Sustainability and Network Structure. arXiv:2103.03635

143. O. Cabrignac, A.Charpentier & E. Gallic (2020) Modeling Joint Lives within Families. arXiv:2006.08446

144. A.Charpentier, A.Galichon & L.Vernet* (2019) Optimal transport on large networks a practitioner guide. arXiv:1907.02320

145. E.Belz* & A.Charpentier (2019) Données Agrégées et Variables Compositionnelles : Note Méthodologique. hal:2097031, poster

146. A.Charpentier & E.Flachaire (2019) Extended Scale-Free Networks. arXiv:1905.10267

147. A.Charpentier (2018) An introduction to multivariate and dynamic risk measures. hal:01831481,

148. M.Boudreault & A.Charpentier (2011) Multivariate integer-valued autoregressive models applied to earthquake counts. arXiv:1112.0929

149. A.Charpentier (2010) Reinsurance, ruin and solvency issues: some pitfalls. hal:00463381,

150. A.Charpentier & D.Causeur (2010) Large-scale significance testing of the full Moon effect on deliveries hal:00482743,

Teaching

Selected courses

Fairness and discrimination in predictive modeling — MAT998X
Université du Québec à Montréal, Canada — *2024*

Insurance, biases, discrimination and fairness
ENSAE, Saclay, France — *2024*

Theory of statistical learning — STT8330
Université du Québec à Montréal, Canada — *2024*

Introduction to data science and artificial intelligence — INF7100
Université du Québec à Montréal, Canada — *2020*

Data Science for Actuaries ACT6100
Université du Québec à Montréal, Canada *2020*

Applied Linear Models STT5100
Université du Québec à Montréal, Canada *2018,2019,2020,2021,2022,2023*

Statistical Learning STT3030
Université du Québec à Montréal, Canada *2024*

Statistics STT1000 & MAT4681
Université du Québec à Montréal, Canada *2022*

Regression MAT7381
Université du Québec à Montréal, Canada *2020*

Non-life insurance mathematics
ENSAE, Paris, France *2015, 2016, 2017*

Networks and flows
Université de Rennes 1 *2017*

Welfare and inequalities
Université de Rennes 1 *2016,2017, 2018*

Time Series MAT8181
Université du Québec à Montréal, Canada *2014*

Copulas and Extreme Values MAT8595
Université du Québec à Montréal, Canada *2014*

YouTube channel
Courses ∼ 66,000 views *since 2020*

Summer schools

Insurance, biases, discrimination and fairness
Warsaw Actuarial Summer School, Poland *2024*

Econometrics and Machine Learning
Società Italiana di Econometria (SIdE), Italy *2019*

Insurance Data Science: Use and Value of Unusual Data
Summer School of the Swiss Association of Actuaries, Lausanne, Switzerland *2019*

Econometrics and Machine Learning
Università degli studi dell'Insubria, Italy *2018*

Econometrics and Machine Learning
Universitat de Barcelona, Spain *2018*

Other Institutions

École Polytechnique *France, 2008-2010*
Đại học Kinh tế Thành phố, Hồ Chí Minh *Vietnam, 2008*
Institut de Statistique de l'Université de Paris (ISUP) *France, 2008*
Institut de Mathématiques Appliqués, Angers *France, 2007*
INSEA, Rabbat *Marocco, 2006*
Université Saint-Joseph, Beyrut *Lebanon, 2006*
ENSEA, Abidjan *Ivory Coast, 2003*

Professional training

Data Science for Actuaries	Paris, France
Institut des Actuaires	*2015-2018*
Data Science & Machine Learning for Actuaries	Istanbul, Singapore & Paris
AXA Group	*2015*
Machine Learning for Insurance	Niort, France
MAIF Insurance	*2014*
Natural Catastrophes & Cat Bonds	Paris, France
AXA Group	*2007*
R for Actuarial Science	Paris, France
AXA & Caritat (professional training)	*2006-2007*

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