ARTHUR CHARPENTIER

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@ ₩ @freakonometrics | \$\footnote{S}\$ scholar | \$\partial \text{hypotheses.org} | \text{https://freakonometrics.github.io/}

Personal

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

Research Interests

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

Bio

Experience

Université du Québec à Montréal (UQAM)

Montréal, Canada

since 2018

Full Professor, Mathematics Department

- Member of MSc & PhD Admission Selection Committee
- Former member of BSc Supervising committee (in Actuarial Science)
- Teaching STT1000, STT3030, MAT4681, STT5100, ACT6100 (BSc) INF7100, MAT7381, STT8330, MAT998P (graduate)
- 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 *2015-2018*

Director, Data Science for Actuaries Program

(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

• Teaching STT2700, STT6705

École Polytechnique

Palaiseau, France

Professeur Chargé de Cours, Economics Department

• Teaching ECO431, ECO550, ECO556, ECO568

2008-2010

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 ENSAI, Lecturer

Ker Lann, France 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

Exane ▶ Paris, France Fixed Income Research Department 1998-1999

Education

Université de Rennes **>**

Rennes, France

2016

Habilitation à diriger des recherches

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, CRI²GS
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

Member of the International Actuarial Association (IAA)

Paris, France since 2003

• Member of working groups, anticipate IA impacts, big data, enterprise risk management

Grants

Financial Grants	
SCOR Foundation Fairness of predictive models: an application to insurance markets, PI Single (100%) Newsletter #1 (Oct 23-Mar 24) #2 (Apr-Sep 24) #3 (Oct 24-Mar 25)	300,000€ 2023-2026
Chaire Thélem/ILB Data Science and Insurance Fraud Detection co-PI, with Marie-Pier Côté (50%)	10,000€ 2023
Chaire ACTIONS BNP-Cardif, Institut des Actuaires & Institut Louis Bachelic co-I, PI: Yahia Sahli & Denys Pommeret (5%)	er \ tbo 2024-2026
AXA Research Fund ▶ Joint research initiative, PI Single (100%) http://jridata.github.io/	200,000€ 2020-2022
Natural Sciences and Engineering Research Council of Canada (NSERC) • Emerging Infectious Diseases Modelling Initiative (MfPH), Fields Group (2%)	\$3,000,000 2020-2022
MITACS (EY) Insurance and fairness	\$30,000 2021-2022
Natural Sciences and Engineering Research Council of Canada (NSERC) NSERC-CRSNG, Discovery Grant, PI Single (100%)	\$100,000 2019-2025
Agence Nationale pour la Recherche ORDINEQ project Ordinal and Multivariate Inequalities (5%)	525,000€ 2015-2019
Institut Louis Bachelier ACTINFO Research Chair, co-PI, with Romuald Élie (50%)	558,000€ 2015-2018
PEPS MoMIS, CNRS co-I, with Fréderic Giroire (30%)	15,000€ 2015
Natural Sciences and Engineering Research Council of Canada (NSERC) NSERC-CRSNG, Discovery Grant, PI Single (100%)	\$70,000 2012-2014
Institut Louis Bachelier Chaire Groupama-Dauphine, Research Grant (100%)	10,000€ 2010
Agence Nationale pour la Recherche AST&Risk Approches spatio-temporelles pour la modélisation du risque (5%)	500,000€ 2008-2012
Institut Louis Bachelier Chaire AXA-ENSAE(100%)	24,000€ <i>2010</i>
Duties	
Journal, Books & Association Boards	
Canadian Statistical Sciences Institute (CANSSI) Member of the Board of Directors	Canada 2022-2025
Chapman & Hall/CRC Series in Actuarial Science ▶ Series Editor Board	since 2024
Journal of Risk and Insurance Senior Editor	2022–2025

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 Member of the Mathematics and Statistics (1508) Evaluation Group	Ottawa, Canada 2022-2025
FRQNT Grants Member of the jury (B1/B2/B3-03E), Master, PhD, Postdocs	Québec, Canada 2019-2023
Faculty of Science, UQAM Member of the Research Committee	Montréal, Canada 2018-2024
MSc Program in Mathematics, UQAM Member of the supervising committee	Montréal, Canada since 2021
Bachelor Program in Actuarial Science, UQAM Member of the supervising committee	Montréal, Canada 2018-2021
Conseil de Faculté, Université de Rennes Member of the faculty board	Rennes, France 2016-2018
France Stratégie - Cabinet du Premier Ministre Membre du groupe de travail sur la mutualisation des risques climatiques	Paris, France 2024
HCÉRES Haut Conseil de l'évaluation de la recherche et de l'enseignement supérieur Evalution committee president	Paris, France
Data & Code	
Insurance Pricing Game http://pricing-game.com/ with A. Farzanehfar & F. Houssiau (Imperial College)	AICrowd 2020-2021
CASDataset 1.2-0 CASDataset R package	R since 2015
Dissemination	
₩ Blue sky account @freakonometrics.bsky.social Scientific dissemination	since 2024
$m{Q}$ Mastodon account $m{Q}$ freakonometrics $m{Q}$ mastodon.social Scientific dissemination, $\sim 4,100$ followers	since 2022
$f Twitter\ account\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $	2010-2022
Q Hypotheses Blog Notebook https://freakonometrics.hypotheses.c	org/ since 2008
• Quinquennat Macron : quelle évolution du droit des assurances?	Dalloz Actualité 2022

• Arthur Charpentier on Freakonometrics, Machine Learning and Big Data Economic	z Actualité 2022 ic Rockstar 2018
	nce Culture 2018
• Coupe du Monde 2018 : des chercheurs de Rennes prévoient la victoire de la France	RTL 2018
	La Tribune 2017
•	ue Dessinée 2016
	ngton Post, 2015
• You can vote twice! The many political appeals of proxy votes in France Washin see https://freakonometrics.github.io/dissemination/formore details	ngton Post, 2014
Interviews	
• IA et assurance 🔛 La Lettre de l	l'Assurance 2024
• Assurances : des collectivités désemparées face aux effets du dérèglement climatique 🗉	Politis 2024
• Actuarial ethics and the future of the profession 🖃 The Europe	an Actuary 2024
• L'indispensabile e controverso uso dell'intelligenza artificiale 🖃 Da Il So	ole 24 Ore, 2024
• Podcast: IA, biais et éthique en assurance 🕨 🥞	Nexialog 2023
• Quand les assurances n'assurent plus, un autre effet du changement climatique 🞐 🛚 R	TS (rts.ch) 2023
• Qu'est-ce que l'assurance? Interview d'un économiste de l'assurance 📾 Dallo	z actualité 2022
• Algorithmes : garder le contrôle 📾 L'Actu	uariel (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 📾 Scie	ences & 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 Economie	my, 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) Wash Assessing Central Bank Solvency	nington DC, US 2021
International Fund for Agricultural Development (IFAD) United Nations NLP and Topic Modeling	Roma, Italy 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

v	ecent conferences organization	
	Fairness and Insurance title to be confirmed, with A. Ly (scientific & organization committee)	Paris, France 2025
	Workshop on Probability and Machine Learning with H. Guérin, D.M. López, M. Morales, J.C. Pardo, V. Rivero	Guanajuato, Mexico 2025
	6th Insurance Data Science conference (scientific committee)	London, UK 2025
	2nd Workshop of Fairness and Discrimination in Insurance with MP. Coté (scientific & organization committee)	Québec, Canada 2024
	5th Insurance Data Science conference (scientific committee)	Stockholm, Sweden 2024
	Networks, Games and Risk with M. Ghossoub (scientific & organization committee)	Montréal, Canada 2023
	5th Insurance Data Science conference (scientific committee)	London, UK 2023
	Modeling of Infectious Diseases Colloquium with B. Nasri & Hélène Guérin (scientific & organization committee)	CRM-Fields, Canada 2023
	Association for the Development of Research in Economics and Annual Doctoral Conference of ADRES (scientific committee)	Statistics Paris, France 2022-2023
	Workshop of Fairness and Discrimination in Insurance with MP. Coté (scientific & organization committee)	Québec, Canada 2022
	Emerging Insights in Insurance Statistics with E. Valdez, J. Cao & H. Jeong (scientific & organization committee) ▶	BIRS, Banff, Canada 2022
	MLISTRAL Machine Learning in Insurance, CIRM (scientific committee)	Marseille, France 2022
	4th Insurance Data Science conference (scientific committee)	Milano, Italy 2022
	Journées de la Statistique SFdS (Société Française de Statistique) Annual Meeting (scientific committee	Lyon, France 2022
	3rd Insurance Data Science conference with M. Gesmann, S. Pesenti & A. Tsanakas (scientific & organization comm	online <i>2021</i>
	36th Meeting of the Canadian Econometric Study Group Machine Learning Econometrics, at UQAM (scientific committee)	Montréal, Canada 2019
	Atlantic Causal Inference Conference University McGill (scientific committee)	Montréal, Canada 2019
	2nd Insurance Data Science conference with M. Gesmann & A. Tsanakas (scientific committee) ▶	ETH Zürich, Switzerland 2019
	Workshop on data science for actuarial applications ACTINFO Chair, with Chairs at University CB Lyon (ISFA)	Paris, France 2018
	Workshop on multivariate inequalities ANR Ordineq, with O. L'Haridon & B. Taroux	Rennes, France 2018
	5th R in Insurance conference (scientific committee) ▶	Paris, France 2017

Selected	presentations	at con:	ferences	and	workshops	

Financial Conduct Authority (FCA) Seminar to be confirmed (invited speaker)	London, UK 2024
Canadian Econometrics Study Group (CESG) Calibration of scoring functions (invited speaker)	Toronto, Canada 2024
Statlab CRM, Université Laval Algorithmic fairness with optimal transport (invited speaker)	Québec, Canada 2024
Mathematical Foundations of AI Workshop Optimal transport and fairness (keynote speaker)	Sorbonne Center for AI, Paris, France 2024
Colloque l'assurance face à ses ruptures (CCIC) Certitudes collective et incertitudes individuelles, les données	Cerisy, France (invited speaker) 2024
Workshop on decentralized insurance and risk share Collaborative insurance, unfairness and discrimination (invited)	
6th edition of the European Actuarial Journal Conf <i>Calibration of insurance models</i>	erence Lisbon, Portugal 2024
27th International Congress on Insurance: Mathem <i>Optimal transport and Wasserstein barycenter for algorithmic</i>	3
Optimization Days Market Pricing with Reinforcement Learning	Montréal, Canada 2024
Optimal Transport Workshop Optimal transport for fairness (invited) Institut d'Etude	es Scientifiques (IES), Cargèse, France 2024
Journée d'étude sur le blanchiment et la fraude L'intelligence artificielle comme instrument de lutte contre le b	Nîmes, France lanchiment (invited) 2024
6th Insurance Data Science Conference Optimal transport for fairness with multiple sensitive attribute	Stockholm, Sweden 2024
Actuarial Science Workshop, SSC Annual Conference Optimal transport for fairness, in insurance (invited speaker)	ce Carleton Univ., Ottawa, Canada 2023
Foundations and Applications of Decentralized Risk Risk sharing on irregular networks (invited speaker)	KU Leuven, Belgium 2023
16th Annual Conference of Thailand Econometric S Quantifying discrimination and fairness in predictive models	•
6th International Econometric Conference of Vietna Causal inference with optimal transport (invited speaker)	am Thành phố Hồ Chí Minh, Vietnam 2023
Montréal AI Symposium (MAIS2022) Insurance, fairness and discrimination	Montréal, Canada 2022
Workshop on Impacts of Climate Change Catastrophic risks and insurance (invited speaker)	Fields Institute, Toronto, Canada 2022
Deutsche Gesellschaft für Versicherungs- und Finar A fair pricing model via adversarial learning (invited speaker)	•
20 ans du Master d'Actuariat Climate risk and insurance fairness (invited speaker)	Universtié Dauphine, Paris 2022
Simulation & IA 2022 Simulations and risk (keynote)	Cargèse, Universita di Corsica, France 2022

Actuarial Sciences and Applications Fairness in insurance pricing (keynote)	CIRM, Luminy, France 2022
CMStatistics Kin Modeling Joint Lives within Families (invited speaker)	g's College, London, UK 2021
Emeritaat Jan Beirlant Extended Pareto distribution and applications (invited speaker)	Leuven, Belgium 2021
Justice sociale, l'équité et les discriminations dans les systèmes à Assurance et discrimination (invited speaker)	algorithmiques CNRS 2021
IAA (International Actuarial Association) Online Joint Section Co Individual risks and collective decisions (invited speaker)	olloquium 2021
Institut Universitaire de France (IUF) Conference Risque de pandémie, pertes d'exploitation et incertitudes	Le Mans, France 2021
5e Conférence annuelle PANORisk Autocalibration and Insurance Pricing (invited speaker)	Le Mans, France 2021
SSC (Statistical Society of Canada) Annual Conference Autocalibration & Premium Calculations (invited session)	Canada <i>2021</i>
IME (Insurance: Mathematics & Economics) Annual Conference Autocalibration & Premium Calculations ▶ (and panel discussion ▶)	Champaign, Illinois, US 2021
ASTIN Annual Conference Autocalibration & Premium Calculations	Orlando, Florida, US 2021
MODCOV19-CNRS Modèles épidémiologiques pour analyse coût-efficacité sous incertitude (invited	Paris, France l speaker) 2020
Machine learning for economists and applied social scientists Machine Learning in Actuarial Science & Insurance (plenary speaker)	Hallifax, Canada 2020
Actuarial and Financial Mathematics Conference Insurance Pricing in Competitive Markets (invited speaker)	Brussels, Belgium 2020
Online International Conference in Actuarial science and finance Modeling Joint Lives within Families Risk Analytics Conference Actuarial Pricing and Competition, University of Illinois (keynote speaker)	Lyon, France 2020 Chicago, US 2019
UCSB InsurTech Summit Insurance Pricing in Competitive Markets (invited speaker)	Santa Barbara, US 2019
Natural Catastrophe Economics Workshop Assessing Probabilities with Climate Change (invited speaker)	Zürich, Switzerland 2019
XXVIIIth International Biometric Conference Collaborative Genealogical Data in Demography (invited session)	Barcelona, Spain 2018
European R Users Meeting • Collaborative Genealogical Data in Demography (invited speaker)	Budapest, Hungary 2018
Ecole Thématique sur l'Evaluation des Politiques Publiques Evaluation du prejudice corporel en assurance automobile (invited speaker)	Aussois, France 2018
Big data empirics and policy analysis, Bank of England Insurance: Risk Pooling or Price Segmentation (keynote speaker)	London, UK 2017
Artificial Intelligence for fintech and insurtech Insurance Pricing and Competition (invited speaker)	IHP, Paris, France 2017

New challenges in the measurement of economic Extended Pareto Models and Incomes (invited speaker)	nic inequalities Marseille, France 2017
Cartostats La Ville en Économie (invited speaker)	Université Paris Diderot, France 2017
Dependence Modelling with Applications Insurance Pricing and Competition (invited speaker)	Athens Αθήνα, Greece 2017
Comprendre et Anticiper la Révolution du Num Assurance et Responsabilité (invited speaker)	Lérique en Assurance Caen, France 2017
Statistical Learning and Data Science Quantiles and Expectiles (invited speaker)	rasmus University, Rotterdam, Netherlands 2017
Sciences XXL Collaborative Data in Genealogy (invited speaker)	INED, Paris, France 2017
3rd International MACroeconomics workshop (From Micro to Macro (invited speaker)	IMAC) Rennes, France 2016
Ordinal and Multidimensional Inequalities Pareto Models and Incomes (invited speaker)	Montpelier, France 2016
Droit des données personnelles Assurance & RGPD (règlement général sur la protection d	Amiens, France des données) (invited speaker) 2016
3rd EAJ Conference (European Actuarial Journ Big Data and Insurance (invited speaker)	al) Lyon, France 2016
International Conference on Applied Business a Natural Catastrophes and Government Intervention	and Economics Nanterre, France 2016
Big Data: la recherche s'expose Big Data and Insurance (invited speaker)	Paris, France 2016
Centre for Central Banking Studies Big Data and Insurance (keynote speaker)	Bank of England, London, UK 2016
Asociación Española de Gerencia de Riesgos y S Machine Learning and Insurance (keynote speaker)	Seguros Barcelona, Spain 2016
Big Data & Environment Impact of time Granularity on Statistical Modeling (invit	Buenos Aires, Argentina ted speaker) 2015
IA BE Summer School Machine Learning and Insurance (keynote speaker)	Louvain, Belgium 2015
ACP meeting Big and Small Data in Insurance (invited speaker)	Leuven, Belgium 2015
Journées de Statistiques Probit transformation for nonparametric kernel estimation	Lille, France on of the copula density 2015
22nd International Forecasting Financial Mark	on of the copula density 2015
Copulas and Finance	
•	ets Conference Rennes, France
Copulas and Finance Insurance & Finance Colloquium	Rennes, France 2015 Le Mans, France 2015 London, UK

Mathematical Finance Days Risk Measures and Pareto Models	HEC Montréal, Canada 2014
World Social Science Forum (UNESCO) Academic Blogging (invited session)	Montréal, Canada 2013
Mathematical Finance Days Quantiles Estimation from Heavy Tailed Distribution	HEC Montréal, Canada 2013
6th R/Rmetrics Summer School on Computational Finance Actuarial Science with R (invited speaker)	Meielisalp, Switzerland 2012
Journées de la Société Canadienne de Sciences Économiques Modeling dynamic incentives an application to basketball	Mont Tremblant, Canada 2012
Québec-Ontario Workshop on Insurance Mathematics Quantiles Estimation from Heavy Tailed Distribution	Montréal, Canada 2012
Mathematical Finance Days Fast Computations on Binomial Trees	HEC Montréal, Canada 2012
Journées de la Société canadienne de sciences économiques Insurance of Natural Catastrophes When Should Government Intervene?	Sherbrooke, Canada 2011
Changement climatique et gestion des risques Modeling heat-waves: return period for non-stationary extremes	Lyon, France 2011
Journées d'Etudes Statistique Copulas, Insurance and Risk Measures (invited speaker)	Luminy, France 2010
IA-Lyon Summer School Solvency II' newspeak 'one year uncertainty for IBNR' : the boostrap approaci	Lyon, France h 2010
Financial Risks International Forum Multiple Risk Measures	Paris, France 2010
Assessment and Mitigation of Emerging Risks Emerging risks: an actuarial perspective	Paris, France 2009
R.I.S.K. Symposium Incertitude des régimes des retraites	Paris, France 2009
Workshop Finance & Insurance Estimation of quantile related risk measures (invited speaker)	Sao Paulo, Brazil 2009
Workshop on Actuarial Science IBNR and quantification of uncertainty	Belo Horizonte, Brazil
7th International Workshop on Rare Event Simulation (RESIM) Optimal Reinsurance with ruin probability target	Rennes, France 2008
Deutsche Mathematiker-Vereinigung, Humboldt-Universität Estimating (properly) copula densities in tails	Berlin, Germany 2007
Conference Insurance Mathematics & Economics Extremes for Archimedean copulas	Leuven, Belgium 2006
Extreme Values, Copulas and Applications Day, UdeM Estimating (properly) copula densities in tails	Montréal, Canada 2005
Conference Insurance Mathematics & Economics Can one model natural hazards independently	Québec, Canada 2005
XXXVIèmes Journées de statistique Distribution limite des structures de dépendance dans des processus de défaut	Montpellier, France

3rd Conference in Actuarial Sci- ence & Finance on Samos Extreme and dependence, a copula approach	Samos Σάμος, Greece 2004
Dependence Modelling: Statistical theory and applications Limiting dependence structure for credit defaults	Québec, Canada 2004
Statistical Issues in Actuarial Risk Modelling, Eurandom Dependence in tail distributions	Eindhoven, Netherlands 2003
XXXVIIIèmes Journées de statistique Extremes for Archimedean copulas	Clamart, France 2003
Conference Insurance Mathematics & Economics Tail distribution and dependence measures	Lyon, France 2003

Selected talks at academic seminars

HEC Lausanne & UNIL	Lausanne, Switzerland, 2025
Københavns Universitet	Copenhagen, Denmark, 2024
Séminaire de modélisation financière de Paris, Université Paris Sorbonr	ne Paris, France, 2024
Groupe de travail ARC (Actuariat et Risques Contemporains), Sorbonne	e Université Paris, France, 2024
ENS Ker-Lann 🕒	Rennes, France, 2023
UdeM & CIREQ Econometrics Seminar	Montréal, Canada, 2023
SINCLAIR (Saclay INdustrial Collaborative Laboratory for Artificial Int	elligence 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 Incertitu	ides) 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
Hong Kong University 香港大學	Hong Kong 香港, China, 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

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elected talks and presentations at practitioners seminars	
Institut Luxembourgeois des Actuaires (ILAC) Annual Meeting to be confirmed (keynote speaker)	Luxembourg 2025
Workshop on Trustworthy AI Insurance, discrimination and fairness	Montréal, Canada 2024
Actuarial Contact Program, ACP – KUL From contemplative to predictive modeling in actuarial science and risk manage	Leuven, Belgium 2024
Groupe de Travail 'Mutualisation des risques', France Stratégie Member of group, various participations and presentations	Paris, France 2024
SCOR monthly webinar Scope and limits of artificial intelligence	Paris, France (online) 2024
TD General Insurance Pricing Seminar Fairness and Ethics in Actuarial Pricing	Montréal, Canada 2024
Akur8 Technical Seminar Ethics in Actuarial Pricing, and equipy	Paris, France (online) 2024
Chaire Thélem / ILB Fairness and Ethics in Actuarial Pricing	Orléans, France 2024
Data Talk Generali Fairness and Ethics in Actuarial Pricing	Paris, France 2024
Colloque Actuariat Francophone La mutualisation et l'inclusion à l'épreuve de la segmentation (invited speaker)	Paris, France 2023
TD Insurance Data Analytics Seminar Fairness and Ethics in Actuarial Pricing	Montréal, Canada 2023
Intact Seminar Causal Models for Discrimination in Insurance	Montréal, Canada 2023
Akur8 Pricing Seminar Fairness and Ethics in Actuarial Pricing	Paris, France 2023
Conference Data Science Institute Les enjeux des risques climatiques en assurance de dommages	Montréal, Canada 2023
Table ronde sur la pratique actuarielle, AG2R Perspective de la pratique actuarielle	Paris, France 2023
3e Colloque International de l'Actuariat Francophone La mutualisation et l'inclusion à l'épreuve de la segmentation	Paris, France 2023
Journée d'étude Alvidence Machine Learning with Fairness Contraints	Paris, France 2023
Data Science Webinar, Institut du Risk Management Machine Learning with Fairness Contraints	Paris, France 2023
Service Juridique France Assureurs Insurance & 'high-risk' AI systems - EU AI Act	Paris, France 2023
Comité Corporel de France Assureurs To Sue or not to Sue	Paris, France 2023
Colloque SCOR-Institut des Actuaires Assurance collaborative, théorie des graphes et actuariat	Paris, France 2022

Beneva (La Capitale & SSQ Assurance) Competitions in insurance markets	Québec, Canada 2022
Optimind Webinar La non-discrimination dans l'usage des données et les modèles actuariels	Paris, France 2022
Cov&Data, Covea (MAAF, MMA & GMF) Interpretability of predictive models	Paris, France 2022
100% Data Science, Institut des Actuaires Are you a probability?	Paris, France 2022
DataDay MAIF Data and climate change	Niort, France 2022
Casualty Actuarial and Statistical Task Force (CASTF), NAIC An introduction to Bayesian models	Washington, DC, USA 2022
Journées actuarielles - Actuarial Days - Groupama Flood and subsidence	Paris, France 2022
Chaire DIALog (digital insurance and long term risk) Insurance, fairness and discrimination	Paris, France 2022
Institut des Actuaires & Institut Louis Bachelier Vision bayésienne de l'apprentissage	Paris, France 2022
ASTIN – International Actuarial Association Insurance: discrimination and fairness	Ottawa, Canada 2022
Journée de l'actuariat IARD (Institut des Actuaires) Machine Learning : de la promesse à la réalité (table ronde)	Paris, France 2022
IVADO (Communauté de pratique) Insurance: biases, discrimination & fairness	Montréal, Canada 2022
COV&Data Conference: IA de confiance Insurance: biases, discrimination & fairness	Paris, France 2022
AXA Actuarial Conference # 62 Catastrophic Climate risks and Insurance	Paris, France 2022
100% Data Science, Institut des Actuaires Modeling subsidence risk in France	Paris, France 2021
Institut Louis Bachelier & Institut des Actuaires Assurance collaborative : Théorie des graphes et Actuariat	Paris, France 2021
TD Insurance Insurance pricing in competitive markets	Montréal, Canada 2020
Autorité de contrôle prudentiel et de résolution (ACPR) Insurance pricing in competitive markets	Paris, France 2019
SCOR, Rencontres Mutualistes Insurance pricing in competitive markets	Beaune, France 2018
AON Benfield, Journées du marché Insurance and climate	Paris, France 2018
Data science conference, Generali Machine learning in insurance	Paris, France 2016
Institut des Actuaires, Big Data Semimar Machine learning in insurance	Paris, France 2015

Society of Actuaries, Predictive Modeling Seminar

From Generalized Linear Models to Trees

Chicago, IL, US 2013

Desjardins Reserving Seminar

One-year uncertainty

Montréal, Canada 2011

Milliman Reserving Seminar

One-year uncertainty

Paris, France 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 (JRSS) -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; Finance Research Letters; Neurocomputing; Management Science; Journal of Economic Theory; Philosophy & Public Affairs; Operational Research; Computers in Human Behavior: Artificial Humans; Compte Rendus de l'Académie des Sciences; Journal of the Royal Statistical Society (JRSS) – Series C; Expert Systems With Applications; European Economic Review; Agua y Territorio (Water and Landscape);

Conferences / Program Committee (PC) member / Reviewer

ECML-PKDD; AIStats

Books Project Reviewer

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

Tenure Reviewer

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

Grants Reviewer

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)

Universidade Federal de Minas Gerais

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

Universitat de BarcelonaBarcelona, Spainvisiting Montserrat Guillen2018

Università degli Studi dell'Insubria

Varese, Italy
visiting Raffaello Seri

2018

Harvard University Cambridge, US

visiting Christine Choirat & Pierre Jacob 2017

Universitat de BarcelonaBarcelona, Spainvisiting Montserrat Guillen2016

Centro de Investigación en Matemáticas Guanajuato, Mexico

visiting Victor Rivero 2014

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, 2023-2025

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, 20
Aña María Patrón Piñerez 🛅	Universidad de los Andes, Colombia, 20
Julien Siharath in	Université de Rennes, France, 20
Cassandra Mussard in	ENSEEIHT & INSA Toulouse-ModIA, France, 20
Florent Crouzet	École Polytechnique, France, 20
Suzie Grondin 🛅	ENSAE, Paris, France, 20
Gaspard Ichas	ENSAI, Rennes, France, 20
Nathan Herzhaft 🛅	École Polytechnique, France, 20
Kim Anh Lê 🛅	Ludwig Maximilian University of Munich, Germany, 20
Olivier Côté 🛅 🜎	(co-supervision) Université Laval, Québec, Canada, 20
Martin de Closets 🛅	École Polytechnique, France, 20
Franklin Feukam Kouhoue in (Prix des	Sciences du Risque Optimind) ENSAE, Paris, France, 20
Rawanda Matar 🛅	UQAM, Canada, 20
Menna Hassan 🛅	(co-supervision) American University, Cairo, Egypt, 20
Thomas Carpentier 🛅	Université de Lyon, France, 20
Lariosse Kouakou in	Université de Brest, France, 20
Elie Odin	ENS (École Normale Supérieure) Ker Lann, France, 20
Apollinaire Barme in	ENSAE, Paris, France, 20
Molly James in	Université de Brest, France, 20
Enora Belz in	Université de Rennes, France, 20
Clothilde Davesne in	ENSAE, Paris, France, 20
Julie Viard 🛅	Université de Rennes, France, 20
PhD Students supervision (3 ongoing,	5 completed)
▶ Agathe Fernandes Machado Fairness and causal models, co-supervise	d with E. Gallic (Aix-Marseille University) 2023-tod
▶ Olivier Côté Predictive Models, Interpretability and E	pxplainability, co-supervised with M.P. Côté (Laval) 2023-tod
► Hongda Hu Bandits and risks, co-supervised with M.	Ghossoub & A. Schied (Waterloo) 2020-tod
Samuel Stocksieker Unbalanced Data, co-supervised with D.	Pommeret (Université de Lyon) 2020-20
Philipp Ratz Constraints in Fair Estimation and Gam	then FEDRO research fellow in 2021-20

Enora Belz then Excelcio in

Etude de données agrégées et mesures d'inégalités 2016-2021

Antoine Ly then CDSO at SCOR D in Algorithmes de machine learning en assurance, co-supervised with R. Élie 2015-2019

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 (UQAM)

(exp) 2024-2025

Marouane Il-Idrissi

Interpretability and fairness, co-supervised with M.P. Côté (Laval University)

2024-2026 then Milliman R&D, (b) in (7)

Fairness, co-supervised with M. Moralès (UdeM)

2022-2024

Félix Foutel Rodier

then Oxford University (D)

Mathematical models for pandemics, co-supervised with H. Guérin

2021-2022

Amirouche Benchallal

then Natural Resources Canada in

Extracting information from satellite pictures, with Y. Bouroubi

2021-2022

Ewen Gallic

François Hu

then Aix-Marseille Univ. (AMSE) in

Extracting information from collaborative genealogical data

2017-2018

Arnaud Goussebaïle

then ETH Zürich (D) in

Insurance and prevention of natural catastrophes

2016-2017

Jury (Habilitation à Diriger des Recherches, PhD, MSc)

HDR (rapporteur, 3): Emilie Devijver (CNRS & Université de Grenoble), Christophe Dutang (Université Paris Dauphine); Nabil Kazi-Tani (Université de Lyon)

PhD (34): Marc Yeterian (Université Paris Dauphine-PSL); Wistan Marchadour (Université de Brest); Marouane Il-Idrissi (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)

MSc: Mélanie Raymond, Jordi Rolls Teikeu Jatsa, Francis Duval, Roxane Turcotte, Olivier Binette, Julie Bélanger, Alexandre Roy-Gaumond (UQAM), Paul Mathivon (Polytechnique)

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 since 2023

Recruiting committees (external member)

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 3250 citations (**G**, November 2024), 50 published papers in peer reviewed journals, 9 published papers in peer reviewed international conferences, 7 books, 51 papers in French (including dissemination papers), 17 chapters in textbooks, 2 practitioners' report and 21 working papers.

Published papers in peer reviewed journals (50)

- F.Foutel-Rodier⁺, A.Charpentier & H.Guérin (2024). Optimal Vaccination Policy to Prevent Endemicity: a Stochastic Model. *Journal of Mathematical Biology*, to appear, ArXiv:2306.13633
- 2. X.Vamparys*& A.Charpentier (2024). Artificial Intelligence and Personalization of Insurance: Failure or Delayed Ignition? *Big Data & Society*, to appear
- 3. O.Côté*, M.P.Côté & A.Charpentier (2024). A Fair price to pay: exploiting directed acyclic graphs for fairness in insurance. *Journal of Risk & Insurance*, to appear doi:10.2139/ssrn.4709243
- 4. K.Aas, A.Charpentier, F.Huang & R.Richman (2024). Insurance analytics: prediction, explainability and fairness. *Annals of Actuarial Science*, 10.1017/S1748499524000289.
- 5. A.Charpentier (2024). The Role of Government vs. Private Sector Provision of Insurance. *Journal of Risk & Insurance*. doi:10.1111/jori.12497
- 6. 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*, issn:2835-8856
- 7. M.Moriah*, F.Vermet & A.Charpentier (2024). Measuring and Mitigating Biases in Motor Insurance Pricing. *European Actuarial Journal*, 10.1007/s13385-024-00390-8
- 8. L.Barry & A.Charpentier (2023). Melting Contestation: Insurance Fairness and Machine Learning, *Ethics and Information Technology* 10.1007/s10676-023-09720-y

^{*:} graduate student; +: post doc fellow

- 9. 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
- 10. L.Barry & A.Charpentier (2022) L'équité de l'apprentissage machine en assurance. *Statistiques & Société*,
- 11. A.Charpentier & E.Flachaire (2022). Oaxaca-Blinder decomposition of changes in means and inequality: A simultaneous approach, *Economics Bulletin*,
- 12. R.Bigot, A.Cayol & A.Charpentier (2022) Risque de pandémie, pertes d'exploitation et incertitudes des garanties assurantielles. *Revue Responsabilité civile et Assurances*
- 13. A.Charpentier & E.Flachaire (2022). Pareto Models for Top Incomes and Wealth. *Journal of Economic Inequality*, **20** doi:10.1007/s10888-021-09514-6 .
- 14. 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
- 15. 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
- 16. 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
- 17. A.Charpentier, R.Élie & C.Remlinger* (2021) Reinforcement Learning in Economics and Finance. *Computational Economics*, doi:10.1007/s10614-021-10119-4
- 18. 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
- 19. 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 ♥
- 20. 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
- 21. L.Barry & A.Charpentier (2020) Personalization as a Promise: Can Big Data Change the Practice of Insurance?. *Big Data & Society*. doi:10.1177/2053951720935143
- 22. A.Charpentier & E.Gallic⁺(2020) Can historical demography benefit from the collaborative data of genealogy websites?. *Population*, doi:10.3917/popu.2002.0391
- 23. 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
- 24. A.Charpentier, N.Ka*, SMussard & O.H. Ndiaye (2019) Gini Regressions and Heteroskedasticity. *Econometrics*, 7, doi:10.3390/econometrics7010004
- 25. A.Charpentier, E.Flachaire & A.Ly*(2018) Econometrics and Machine Learning. *Economics & Statistics*, doi:10.24187/ecostat.2018.505d.1970

- 26. 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 •
- 27. A.Charpentier, A.David*& R.Élie (2017) Optimal Claiming Strategies in Bonus Malus Systems and Implied Markov Chains. *Risks*, doi:10.3390/risks5040058
- 28. 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
- 29. G.Geenens, A.Charpentier & D.Paindaveine (2017) Probit transformation for nonparametric kernel estimation of the copula density. *Bernoulli* doi:10.3150/15-BEJ798
- 30. 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
- 31. 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
- 32. A.Charpentier & E.Flachaire (2015) Log-transform kernel density estimation of income distribution. *L'Actualité Economique*, 91 :141-149, doi:10.7202/1036917ar
- 33. 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
- 34. 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
- 35. 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
- 36. A.Charpentier, M.Durand* (2015) Modeling earthquake dynamics. *Journal of Seismology*, 19: 721-739, doi:10.1007/s10950-015-9489-9
- 37. 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
- 38. A.Charpentier & S.Mussard (2011) Income Inequality Games. *Journal of Economic Inequality*, 9: 529–554, 20 doi:10.1007/s10888-011-9184-1
- 39. A.Charpentier (2011) On the return period of the 2003 heat wave. *Climatic Change*, 109: 245–260, doi:10.1007/s10584-010-9944-0
- 40. 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
- 41. 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
- 42. 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
- 43. A.Charpentier & D. Sibaï*(2009) Dynamic flood modeling: combining Hurst and Gumbel's approach. *Environmetrics*, 20: 32–52, doi:10.1002/env.909

- 44. A.Charpentier (2008) Insurability of climate risks. *The Geneva Papers on Risk and Insurance*, 33: 91–109, doi:10.1057/palgrave.gpp.2510155
- 45. A.Charpentier (2008) Dynamic dependence ordering for Archimedean copulas and distorted copulas. *Kybernetika*, doi:10338.dmlcz/135890
- 46. A.Charpentier & J.Segers (2008) Convergence of Archimedean copulas. *Statistics and Probability Letters*, doi:10.1016/j.spl.2007.07.014
- 47. 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
- 48. 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
- 49. 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
- 50. 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 (9)

- 51. A.Fernandes-Machado*, A.Charpentier & E.Gallic (2025). Sequential Conditional Transport on Probabilistic Graphs for Interpretable Counterfactual Fairness. *39th Annual AAAI Conference on Artificial Intelligence* (AAAI 2025) arXiv:2408.03425
- 52. A.Fernandes-Machado*, A.Charpentier, E.Flachaire, E.Gallic & F.Hu (2024).

 Post-Calibration Techniques: Balancing Calibration and Score Distribution Alignment.

 Thirty-Eighth Annual Conference on Neural Information Processing Systems (NeurIPS 2024) BDU Workshop, arXiv:2403.xxx and poster ■■
- 53. 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
- 54. 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 ♣
- 55. 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 □□
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- 141. 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
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- 143. F.Hu⁺, P.Ratz* & A.Charpentier (2023). Fairness Explainability using Optimal Transport with Applications in Image Classification arXiv:2308.11090
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- 145. F.Hu⁺, P.Ratz^{*} & A.Charpentier (2023). Parametric Fairness with Statistical Guarantees. arXiv:2310.20508
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- 149. A.Charpentier, L.Kouakou, M.Löwe, P.Ratz & F.Vermet (2021). Collaborative Insurance Sustainability and Network Structure. arXiv:2103.03635
- 150. O. Cabrignac, A.Charpentier & E. Gallic (2020) Modeling Joint Lives within Families. arXiv:2006.08446
- 151. A.Charpentier, A.Galichon & L.Vernet* (2019) Optimal transport on large networks a practitioner guide. arXiv:1907.02320 •
- 152. E.Belz*& A.Charpentier (2019) Données Agrégées et Variables Compositionnelles : Note Méthodologique. hal:2097031 ∰, poster □
- 153. A.Charpentier & E.Flachaire (2019) Extended Scale-Free Networks. arXiv:1905.10267
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- 156. A.Charpentier (2010) Reinsurance, ruin and solvency issues: some pitfalls. hal:00463381
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Teaching

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Selected courses	
Statistical learning 🕠 Université du Québec à Montréal, Canada	STT3030 2024
Fairness and discrimination in predictive mo Université du Québec à Montréal, Canada	deling • MAT998P 2024
Insurance, biases, discrimination and fairnes ENSAE-Institut Polytechnique, Saclay, France	2024
Introduction to data science and artificial int Université du Québec à Montréal, Canada	elligence INF7100
Data Science for Actuaries Data Science for Actuaries Duniversité du Québec à Montréal, Canada	ACT6100 2020
Applied Linear Models • • • • • • • • • • • • • • • • • • •	STT5100 2018,2019,2020,2021,2022,2023,2025
Statistics • () Université du Québec à Montréal, Canada	STT1000 & MAT4681 2022
Regression Université du Québec à Montréal, Canada	MAT7381 2020
Non-life insurance mathematics ENSAE, Paris, France	2015, 2016, 2017
Networks and flows Université de Rennes 1, France	2017

Welfare and inequalities	
Université de Rennes 1, France	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 Szkoła Nauk Aktuarialnych, Warsaw, 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, Swit	tzerland 🦪 2019
Econometrics and Machine Learning Università degli studi dell'Insubria, Varese, Italy	2018
	2016
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	
Machine Learning for Actuaries Bermuda Monetary Authority	Bermuda 2025
Data Science for Actuaries Institut des Actuaires	Paris, France 2015-2018
Data Science & Machine Learning for Actuaries AXA Group	Istanbul, Singapore & Paris 2015
Machine Learning for Insurance MAIF Insurance	Niort, France 2014
	Paris, France
Natural Catastrophes & Cat Bonds AXA Group	2007

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