ARTHUR CHARPENTIER

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freakonometrics | scholar | URL: https://freakonometrics.github.io/

Topics

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

Bio

Experience

Université du Québec à Montréal Montréal, Canada
Full Professor, Mathematics Department *since 2018*

Université de Rennes Rennes, France
Full Professor (Professeur des Universités), Faculty of Economics *since 2017*

Institut des Actuaires Paris, France
Director, Data Science for Actuaries Program *2015-2018*

Université de Rennes Rennes, France
Assistant Professor (Maître de Conférences), Faculty of Economics *2014-2017*

Université du Québec à Montréal Montréal, Canada
Professor, Mathematics Department *2011-2014*

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

École Polytechnique Palaiseau, France
Professeur Chargé de Cours, Economics Department *2008-2010*

Université de Rennes Rennes, France
Assistant Professor - Maître de Conférences, Faculty of Economics *2007-2010*

École Nationale de la Statistique et d'Analyse de l'Information Ker Lann, France
ENSAI, Lecturer *2006-2007*

École Nationale de la Statistique et de l'Administration Économique Malakoff, France
ENSAE, Lecturer *2002-2006*

French Federation of Insurers Paris, France
FFA (ex FFSA), Statistics department *2001-2002*

AXA General Insurance Hong Kong Limited 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 *2017*

Katholieke Universiteit Leuven Leuven, Belgium
Doctor in de Wetenschappen Wiskunde - PhD in Applied Mathematics *2006*

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

Adjunct Professor (professeur associé)
Université Laval (Québec) *2022- 2024*

Adjunct Professor
University of Waterloo *since 2020*

Current
CRM, HumanIA, Chaire PARI, IRT St Exupery-MILA, Réseau de recherche épidémiologie et santé publique
Réseau de recherche sur le numérique, Réseau de recherche en sécurité routière du Québec

Previous
CREM, GERAD, CREST, École Polytechnique

Honors and other activities

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

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

Institut des Actuaires Fellow Paris, France
Member of the International Actuarial Association (IAA) *since 2003*

Journal of Risk and Insurance
Senior Editor *since 2022*

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

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

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

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

Faculty of Science, UQAM Montréal, Canada
Member of the Research Committee *2018-2021*

Bachelor Program in Actuarial Science, UQAM Montréal, Canada
Member of the supervising committee *2018-2022*

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

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/ *since 2015*

Dissemination

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

Twitter account @freakonometrics
Scientific dissemination, ∼ 28,100 followers *2010-2021*

Quinquennat Macron : quelle évolution du droit des assurances ? *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*
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

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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

Workshop of Fairness and Discrimination in Insurance Québec, Canada
with M.-P. Coté *2022*

Emerging Insights in Insurance Statistics BIRS, Banff, Canada
with E. Valdez, J. Cao & H. Jeong *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*

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

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

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

Atlantic Causal Inference Conference Montreal, Canada
University McGill (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*

Selected talks at conferences

16th Annual Conference of Thailand Econometric Society Chiang Mai University
title to be confirmed (keynote) *2023*

Sixth International Econometric Conference of Vietnam Thành phố Hồ Chí Minh
title to be confirmed (keynote) *2023*

INFORMS 2022 Annual Meeting Indianapolis, IN, U.S.
title to be confirmed *2022*

Workshop on Impacts of Climate Change Fields Institute, Toronto
title to be confirmed *2022*

Deutsche Gesellschaft für Versicherungs- und Finanzmathematik (DGVFM) Germany
title to be confirmed (keynote) *2022*

20 ans du Master d'Actuariat Universtié Dauphine, Paris
Climate risk and insurance fairness *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 session) *2021*

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

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

IAA (International Actuarial Association) Online Joint Section Colloquium
Individual risks and collective decisions *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, Swiss
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 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 *2013*

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

6th R/Rmetrics Summer School on Computational Finance Meielisalp, Swiss
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

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 Semainar	*Madison, WI, US, 2019*
University of Waterloo, Actuarial Seminar	*Waterloo, Canada, 2019*
UQAM, LATECE, Computer Science Seminar	*Montreal, Canada, 2019*
Université Laval, Quantact Actuarial Seminar	*Québec, Canada, 2019*
UQAM, Economics Seminar	*Montreal, 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	*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 at practitioners seminars

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

Climate Modeling - 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*

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*

Referee for peer reviewed journals

Stochastic Environmental Research and Risk Assessment, Theory and Decision, Insurance: Mathematics and Economics, Journal of Banking and 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 Ressources, 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 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, Systems and Control Letters, Annals of Operations Research

Reviewer activities

Tenure review

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

Grants

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

Member of the jury (B1/B2/B3-03E) since 2019 — *FQRNT (Quebec) Canada*

Mathematics and Statistics Evaluation Group (EG 1508) since 2022 — *NSERC (Canada)*

Books

MIT Press, Springer Verlag, CRC Press, SAGE

Selected research visits (> 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*

Master students (since 2015)

Martin de Closets	*École Polytechnique, France, 2022*
Franklin Feukam Kouhoue	*ENSAE, Paris, France, 2022*
Rawanda Matar	*UQAM, 2021*
Menna Hassan	*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

Antoine Rainaud
Insurance and climate risks — *forthcoming*

Franklin Feukam Kouhoue
Interpretability and Fairness — *forthcoming*

Philipp Ratz
Reiforcement learning and Insurance — *2021-today*

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

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

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 (Canada)
La régression expectile pour données longitudinales, co-supervised with K. Oualkacha *2013-2019*

PhD Students invitations

Charles Condevaux (Univ. Nîmes, France) Gilles Hacheme (AMSE, France) Loann Desboulets (AMSE, France) Bertille Picard (AMSE, France)

Post-doctoral supervision

François Hu
Natural Language Processing and Fairness *2022-2023*

Félix Foutel Rodier (next 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 School of Economics
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)

Meryem Yankol Schalck (Université d'Orléans); Ihsan Chaoubi (Université Laval, Québec); Antoine Heranval (Sorbonne Université); Vincent Grari (Sorbonne Université); François Hu (Institut Polytechnique de Paris); Sander Devriendt (KU Leuven); 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

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Jury (MSc)

Francis Duval, Roxane Turcotte, Olivier Binette, Julie Bélanger, Alexandre Roy-Gaumond

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Jury (Prices)

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

Scor Actuarial Price
MSc and PhD Best Thesis Prices *2007-today*

Grants

Financial Grants

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	$3,000,000
Emerging Infectious Diseases Modelling Initiative, Fields Group (2%)	*2020-2022*
MITACS (EY)	$30,000
Insurance and fairness	*2021-2022*
Natural Sciences and Engineering Research Council of Canada	$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	$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*

Publications

Published papers in peer reviewed journals

1. A.Charpentier & E. Flachaire (2022). Oaxaca-Blinder decomposition: The case of the mean log deviation inequality index, *Economics Bulletin*

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

3. A.Charpentier & Flachaire (2021). Pareto Models for Top Incomes and Wealth. *Journal of Economic Inequality*, doi:10.1007/s10888-021-09514-6 .

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*: graduate student; +: post doc

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8. A.Charpentier, L. Barry & M. James⋆(2021) Insurance against Natural Catastrophes: Balancing Actuarial Fairness and Social Solidarity. *Geneva Papers on Risk & Insurance*, doi:10.1057/s41288-021-00233-7

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10. 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

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

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21. 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

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43. A.Charpentier & C. Dutang (2013). Actuariat avec R. CRAN.

44. M.Denuit & A.Charpentier (2005) Mathématiques de l'assurance non-vie - Tarification et provisionnement (Tome 2). Economica. ISBN 9782717848601

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49. A.Charpentier (2021) Assurance et discrimination, quel rôle pour les actuaires ? *Risques*

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52. A.Charpentier (2021) Une mesure ne peut être un objectif. *Risques* pdf

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

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77. A.Charpentier & B.Cherrier (2015) 'Mathiness' et Assurance. *Risques*, 104, pdf

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Chapters & Participations

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93. A.Charpentier & R.Kaas (2014) Introduction *in* Computational Actuarial Science With R, Charpentier, A. Eds. CRC Press.
94. A.Charpentier & S.Tufféry (2014) Statistical Learning *in* Computational Actuarial Science With R, Charpentier, A. Eds. CRC Press.
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96. A.Charpentier (2014) Modèles statistiques du risque en assurance *in* Statistique du Risque, Droesbeke, Maumy-Bertrand, Saporta & Thomas-Agnan Eds. Technip pdf
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100. L.Barry & A.Charpentier (2022) L'équité de l'apprentissage machine en assurance. HAL:03561709
101. L.Barry & A.Charpentier (2022) The Fairness of Machine Learning in Insurance: New Rags for an Old Man?.

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

103. A.Charpentier (2022). Biais, discrimination et assurance. *Institut Louis Bachelier Working Papers*

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

105. A.Barry & A.Charpentier (2021) Temporal Evolution of Birth Weight Paradox.

106. E.Belz[⋆], A.Charpentier, & P.Y. Geoffard (2021) To sue or not to sue.

107. V.Grari[⋆] , A.Charpentier, S. Lamprier & M. Detyniecki (2021). A fair pricing model via adversarial learning. arXiv:2202.12008

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114. A. Barry[⋆], K. Oualkacha & A.Charpentier (2017) Weighted asymmetric least squares regression for longitudinal data using GEE. arXiv:1810.09214

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Teaching

Selected courses

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 — *2018,2019,2020,2022*

Statistics — 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 ∼ 42,000 views — *since 2020*

Summer schools

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

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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