ARTHUR CHARPENTIER

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EXPERIENCE

2018-now UQAM, Mathematics Department, Full professor
2017-now Université de Rennes, Faculty of Economics, Full Professor
2014-2017 Université de Rennes, Faculty of Economics, Assistant Professor
2011-2014 UQAM, Mathematics Department, Professor
2010-2011 UdeM, Mathematics Department, Visiting professor
2008-2010 École Polytechnique (France), Lecturer

EDUCATION

2017 HDR (Habilitation à Diriger des Recherches) Applied Mathematics (Université de Rennes, France)
2006 PhD Applied Mathematics (KU Leuven, Belgique)
1999 Master (MSc) Mathematical Economics (Université Paris Dauphine, France)
1999 Master (MSc) Statistics and Actuarial Science (ENSAE, Paris, France)

PUBLICATIONS (SELECTION)

More than 3300 citations, complete list

Books (5)

2024 AC. *Insurance, biases, discrimination and fairness*. Springer Nature.
2022 G. Bénéplanc, AC. & P. Thourot. *Manuel de l'Assurance*. Presses Universitaires de France.
2015 AC. *Computational Actuarial Science with R*. CRC Press.

Articles (50, peer reviewed)

2024 O. Côté, M.P.C ôté & AC. A Fair price to pay: exploiting directed acyclic graphs for fairness in insurance. *Journal of Risk & Insurance*,
2024 X. Vamparys & AC. Artificial Intelligence and Personalization of Insurance: Failure or Delayed Ignition? *Big Data & Society*
2024 S. Stocksieker, D. Pommeret & AC. Generalized Oversampling for Learning from Imbalanced datasets and Associated Theory: Application in Regression, *Transactions on Machine Learning Research*
2023 L. Barry & AC. Melting Contestation: Insurance Fairness and Machine Learning, *Ethics & Information Technology*
2022 AC., L. Barry & M. James. Insurance against Natural Catastrophes: Balancing Actuarial Fairness and Social Solidarity. *Geneva Papers on Risk & Insurance*,
2021 M. Denuit, AC. & J. Trufin. Autocalibration and Tweedie-dominance for Insurance Pricing with Machine Learning. *Insurance: Mathematics and Economics*, 101, 485–497
2021 AC., R. Élie & C. Remlinger. Reinforcement Learning in Economics and Finance. *Computational Economics*,
2021 AC., S. Mussard & T. Ouraga. Principal Component Analysis: A Generalized Gini Approach. *European Journal of Operational Research*, 294

Conferences (9, peer reviewed)

2025 A. Fernandes-Machado, AC & E. Gallic. Sequential Conditional Transport on Probabilistic Graphs for Interpretable Counterfactual Fairness *Annual AAAI Conference on Artificial Intelligence* (AAAI 2025)
2024 A. Fernandes-Machado, AC., E. Flachaire, E. Gallic & F. Hu. Post-Calibration Techniques: Balancing Calibration and Score Distribution Alignment. *Conference on Neural Information Processing Systems* (NeurIPS 2024)
2024 S. Stocksieker, D.Pommeret & AC. 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)
2024 F. Hu, P. Ratz & AC. A Sequentially Fair Mechanism for Multiple Sensitive Attributes. *38th Annual AAAI Conference on Artificial Intelligence* (AAAI 2024),

2023 AC., F. Hu & P. Ratz. Mitigating Discrimination in Insurance with Wasserstein Barycenters. *3rd Workshop on Bias and Fairness in AI* (BIAS 2023)

2023 F. Hu, P. Ratz & AC. Fairness in Multi-Task Learning via Wasserstein Barycenters. *Machine Learning and Knowledge Discovery in Databases: Research Track* (ECML/PKDD 2023)

2023 S. Stocksieker, AC. & D. Pommeret. Data Augmentation for Imbalanced Regression. *Proceedings of The 26th International Conference on Artificial Intelligence and Statistics* (AISTATS 2023), 7774–7799

Dissemination (51, in French)

2024 AC. Diversification des risques extrêmes. *Risques*, 139.

2024 AC. & E. Gallic. Décroissance? Quelle décroissance ? *Risques*, 138.

2024 AC. & L. Barry. Partage des données, à qui profite le crime ? *Risques*, 137.

2023 AC. Personne n'est préparé à l'augmentation exponentielle des pertes liées au risque climatique *Le Monde*

Chapters (17)

2023 AC., E. Flachaire & E. Gallic. Optimal Transport for Counterfactual Estimation: A Method for Causal Inference *in* Optimal Transport Statistics for Economics and Related Topics, Springer Nature

2023 AC. Quantifying fairness and discrimination in predictive models. *in* Machine Learning for Econometrics and Related Topics, Kreinovich, SriboonchiNa & Yamaka Eds, Springer Nature

2021 AC. Changement Climatique et Assurance. *in* Le livre vert, E. Challier Ed., Pommier Éditions.

Working Papers (21, submitted)

2024 A. Fernandes-Machado, F. Hu, P. Ratz, E. Gallic & AC. Geospatial Disparities: A Case Study on Real Estate Prices in Paris.

2024 A. Fernandes Machado, AC., E. Flachaire, E. Gallic & F.Hu. From Uncertainty to Precision: Enhancing Binary Classifier Performance through Calibration

2023 F. Foutel-Rodier, AC. & H. Guérin. Optimal Vaccination Policy to Prevent Endemicity: a Stochastic Model.

2023 H. Hu, AC., M. Ghossoub & A. Schied. Multiarmed Bandits Problem Under the Mean-Variance Setting.

2022 M. Hassan, AC. & N. Sakr. Government Intervention in Catastrophe Insurance Markets: A Reinforcement Learning Approach.

CONFERENCES AND SEMINARS (RECENT SELECTION)

Organisation

2024 2nd Workshop of Fairness and Discrimination in Insurance (Laval University, organising committee); 6th Insurance Data Science conference (Stockholm, scientific committee)

2023 Networks, Games and Risk (UQAM, organising committee); Modeling of Infectious Diseases Colloquium (CRM-Fields); 5th Insurance Data Science conference (London, scientific committee)

2022 CIRM Luminy (scientific committee); 4th Insurance Data Science conference (Milano, scientific committee)

Conferences

2024 Canadian Econometrics Study Group (CESG, Toronto, invited); 27th International Congress on Insurance: Mathematics & Economics (Chicago); Optimization Days (Montréal); Optimal Transport Workshop (IES, Cargèse, invited); European Actuarial Journal (EAJ) Conference (Lisboa); Insurance Data Science (Stockholm)

2023 Foundations and Applications of Decentralized Risk Sharing (Leuven, invited); 16th Annual Conference of Thailand Econometric Society (Chiang Mai, invited); 6th International Econometric Conference of Vietnam (Thành phố Hồ Chí Minh, invited); SSC Annual Meeting (Ottawa, invited)

2022 Workshop on Impacts of Climate Change (Fields Institute, Toronto, invited); Simulation & IA 2022 (Cargèse Corsica, keynote); Actuarial Sciences and Applications (CIRM, Luminy, France, keynote)

Seminars

2024 Københavns Universitet; Sorbonne Université; Sorbonne Center for Artificial Intelligence (SCAI); LPSM Paris

2023 ENS Ker-Lann; UdeM & CIREQ Econometrics Seminar; Bayes Business School; University of Waterloo; Séminaire Bachelier (IHP, Paris); ESSEC (Paris)

2022 University of Illinois; CIMMUL (Laval); Université Paris Nanterre; StatQAM (UQAM)

Practitioners

2024 Workshop on Trustworthy AI (HEC Montréal); Actuarial Contact Program (Leuven); SCOR; TD General Insurance; Akur8; Chaire Thelem; Data Talk Generali; Institut des Actuaires
2023 Intact Seminar; TD General Insurance; Data Science Institute; AG2R; AIvidence
2022 Beneva (La Capitale & SSQ Assurance); Optimind Webinar; Cov&Data, Covea (MAAF, MMA & GMF); DataDay MAIF; Casualty Actuarial and Statistical Task Force (CASTF); Groupama; Chaire DIALog; Institut des Actuaires; IVADO; AXA; Institut Louis Bachelier

SUPERVISION (RECENT)

Postdoctoral Fellows

ongoing Arsene-Brice Zotsa Ngoufack (co-supervised H. Guérin); Marouane Il-Idrissi (co-supervised M.P. Côté)
former François Hu (then Milliman Paris R&D); Félix Foutel Rodier (then Oxford - CNRS); Amirouche Benchallal (then Natural Resources Canada); Ewen Gallic (then Aix-Marseille University); Arnaud Goussebaïle (then ETH Zürich)

PhD Student

ongoing Agathe Fernandes Machado (UQAM); Olivier Côté (Laval, co-supervised M.P. Côté); Hongda Hu (Waterloo, co-supervised M. Ghossoub & A. Schied);
former Samuel Stocksieker (Lyon); Philipp Ratz (UQAM); Enora Belz (Rennes); Antoine Ly (Paris-Est); Amadou Barry (UQAM)

MSc Students and Interns

2025 Imane Mokhtatif (École Polytechnique); *3 MITACS Globalink interns (tbd)*
2024 Noé Bosc-Haddad (École Centrale, Paris); Aña María Patrón Piñerez (Universidad de los Andes); Julien Siharath (Université de Rennes); Florent Crouzet (École Polytechnique)
2023 Suzie Grondin (ENSAE); Gaspard Ichas (ENSAI); Nathan Herzhaft (École Polytechnique); Kim Anh Lê (Ludwig Maximilian University of Munich)
2022 Martin de Closets (École Polytechnique); Franklin Feukam Kouhoue (ENSAE); Rawanda Matar (UQAM)

Jury

HDR (3) Emilie Devijver; Christophe Dutang; Nabil Kazi-Tani
PhD (34) Marc Yeterian; Wistan Marchadour; Marouane Il Idrissi; Eric Vansteenberghe; Dafnis Krasniqi; Bertille Picard ; Lucas de Lara; Pierre Chatelain; Antoine Heranval; Geoffrey Ecoto; Guillaume Boglioni Beaulieu, etc;

SERVICE AND DUTIES

Committees and Reviews

2022-2025 NSERC (Natural Sciences and Engineering Research Council of Canada) Maths & Stats 1508 Evaluation Group
2022-2025 CANSSI (Canadian Statistical Sciences Institute) Member of the Board of Directors
2019-2023 FRQNT Member of the jury (B1/B2/B3-03E), Master, PhD, Postdocs

Editorial

ongoing Journal of Risk and Insurance (Senior Editor); ASTIN Bulletin: The Journal of the IAA; Risk
former European Actuarial Journal

Reviews

- ANR; AXA Research Fund; FNR Luxembourg CORE; FRQNT; F.R.S.-FNRS; MICTACS; NSA; NSERC; IVADO; ANRT; ISF; NWO; HK RGC; OBVIA
- MIT Press; Springer Verlag; CRC Press; SAGE; Cambridge University Press

TEACHING

- UQAM: ACT6100, INF6100, MAT4681, MAT7381, MAT998P, STT1000, STT3030, STT5100, STT8330
- ENSAE; Società Italiana di Econometria; Università degli studi dell'Insubria; Universitat de Barcelona

GRANTS AND PROJECT (RECENT)

SCOR Foundation (2023-2026), AXA Research Fund (2020-2022), NSERC (2019-2026), ILB (2015-2018)