Carlos Andrés Araiza Iturria

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Proficient at efficiently solving complex problems using theory and methodology from financial engineering, statistics and actuarial science. My projects typically involve developing and analyzing algorithms for valuation and risk management tasks, or accurate predictive models for pricing and underwriting. Increasingly, this work involves high performance computation and using machine learning. My doctoral dissertation promotes fairness, efficiency and transparency by measuring the discriminatory consequences that arise from errors in the design and implementation of pricing algorithms. Highly skilled in:

- P&C & Health Pricing
- Reinforcement learning
- Equity-linked contingencies
- Machine learning
- IFRS 17
- Multivariate statistics
- Risk management
- Copulas
- Option pricing

Education

2019 – 3-2023 **Ph.D. in Actuarial Science,** University of Waterloo Waterloo, Canada
Supervisors: Mary Hardy, Paul Marriott
Dean of Math Excellence Scholarship
GPA: 93.3/100
- Selected coursework: Financial Econometrics: AI in Finance & Business Analytics, Extreme Value Theory, Machine Learning for Quantitative Finance, Advanced Life Insurance Practice.

2017 – 2019 **M.Sc. in Mathematics,** Concordia University Montreal, Canada
Institut des science mathématiques Scholarship
GPA: 4.14/4.30

2012 – 2016 **B.Sc. in Actuarial Science,** Anahuac University Mexico City, Mexico
Minor in Financial Management
First-Class Honors
GPA: 9.6/10

Professional Experience

2017-2021 **Research and Teaching Assistant**
University of Waterloo (2019-2021) and Concordia University (2017-2019)
- Managed over 650 undergraduate and 40 graduate students in 13 courses including probability, investments, corporate finance, mathematical statistics, P&C pricing, casualty and health insurance mathematics and financial econometrics.

2018-2019 **Research and Development Intern** Montreal, Canada
Eckler Ltd.
- Developed model to measure P&C insurance risks under IFRS 17 framework.

2016-2017 **Financial Analyst** Mexico City, Mexico
Group H+
- Implemented pricing model that improved margins by 50%.
- Financial modeling course by private equity fund: Discovery Americas.

2016	**Statistical Analyst**	Mexico City, Mexico

Accenture – Predictive Location Intelligence
- Designed a sales statistical model for predictive analytics for a major retail client.

2015	**Statistical Analysis Intern**	Mexico City, Mexico

The Mexican Institute of Integrated Prevention
- Optimized project analysis time through a VBA algorithm.
- Descriptive and inferential statistics with survey data.

Publications

2022 **Carlos Andrés Araiza Iturria,** Mary Hardy, Paul Marriott
A Discrimination-Free Premium Under a Causal Framework.
Available at SSRN: http://dx.doi.org/10.2139/ssrn.4079068

2021 **Carlos Andrés Araiza Iturria,** Mary Hardy, Paul Marriott
A Consolidated Database of Police-Reported Motor Vehicle Traffic Accidents in the United States for Actuarial Applications.
Available at SSRN: http://dx.doi.org/10.2139/ssrn.3977693

2021 **Carlos Andrés Araiza Iturria,** Frédéric Godin, Mélina Mailhot
Tweedie double GLM loss triangles with dependence within and across business lines.
European Actuarial Journal, 11, 619-653, https://doi.org/10.1007/s13385-021-00267-0

Presentations

2022 A discrimination-free premium under a causal framework. Urbana, Illinois
Actuarial Research Conference, University of Illinois

2022 Actuarial applications of police-reported MVTA in the U.S. Los Angeles, California
Annual Meeting of the American Risk and Insurance Association

2020 Discrimination-aware decisions in finance and insurance.
Virtual Actuarial Research Conference, University of Nebraska-Lincoln.

2019 Modeling and Measuring Insurance Risks under IFRS 17. Montreal, Canada
Canadian Institute of Actuaries Annual Meeting

2019 Insurance Risks within IFRS 17: A Hierarchical Copula. Calgary, Canada
Annual Meeting of the Statistical Society of Canada

2016 Mixture modeling in actuarial science. Mexico City, Mexico
XI Research Symposium: National Priorities and Research

Computer Skills

Proficient Python, R, SPSS, VBA, SAP.
Experienced C++, Java.

Languages

Native – Spanish   **Fluent -** English   **Beginner -** French