

Title

AI and Ethics in Insurance: A New Solution to Mitigate Proxy Discrimination in Risk Modelling

Speaker/Company

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Abstract

Actuarial fairness is a core topic in the insurance and reinsurance industries. In 2021, the European insurance regulator EIOPA published a report on AI governance principles that underlined the importance of digital ethics in insurance. In this context, the actuarial community is a key stakeholder to help structure a framework for fair insurance.

To produce a fair pricing of insurance products and a fair risk selection, insurers need to adapt simple or advanced models. If the simple removal of protected attributes prevents any 'direct' discrimination, models are still able to 'indirectly' discriminate between individuals thanks to the latent interactions between variables. In this presentation, SCOR proposes a model-agnostic pre-processing technique based on linear algebra to reduce 'indirect' discrimination and move towards fairness, as measured by a selected statistical definition. This method was applied to a mortality dataset in a risk selection case, with the goal of measuring the impact on both the fairness and the performance of the model.

For more detailed information, Scor will release a research article on Bias and Fairness in 2023.

Biography

Antoine LY started his career as an R&D consultant for Milliman, world leader in actuarial consulting, for which he led the Paris Data Analytics team from 2018 to 2019. Antoine graduated from ENSAE Paristech and has a PhD in applied mathematics on the application of machine learning to insurance. He holds a MSc in Computer Science "Data, Learning and Knowledge" from Sorbonne University and is a fully qualified French Actuary.

Antoine CHANCEL started his career as a developer for Forsides Actuary in quantitative finance for the generation of market consistent risk neutral scenarios for Solvency 2. He has a master of science in computer science and in financial mathematics. He completed a Specialized Master in Actuarial Science at ENSAE Paristech. He is a qualified French Actuary and a Society Of Actuaries candidate.

Marguerite SAUCÉ started her career as an actuarial intern at SCOR working on the bias and fairness of insurance models. She is an engineer specialized in statistics and also completed a Specialized Master in Actuarial Science at ENSAE Paristech. She is a French Institute of Actuaries candidate.
