Data – Ethics – Actuary
Data Science & Data Ethics Conference
29/30 June 2020 | Düsseldorf, Germany

european
actuarial
academy

Title

AI and Automation Techniques to Life and Healthcare Practice

Speaker

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Abstract

Artificial Intelligence and Automation are buzzwords that are often mentioned in the context of financial services. The Institute and Faculty of Actuaries' AI and Automation working party has examined been focussing on these topics in the context of Life Insurance and Healthcare since May 2019. In this presentation, we describe our initial work which has been to provide rigorous definitions of these topics to enable a longer term workplan. After providing our view on AI and automation, and considering the potential overlap of these areas, we consider the key application areas of AI and Automation techniques to Life and Healthcare practice, as documented in the literature and according to the practical knowledge of the working party. The applications of AI cover mortality forecasting, reserve and capital approximation and investment applications, while the applications of automation focus on regulatory reporting, analysis of surplus, experience investigations and daily solvency monitoring. We conclude our presentation with an overview of the future research that we will conduct to raise awareness of these techniques and ensure that the implications are considered for all stakeholders. We believe our presentation will be of significant interest, not only because of the current popularity of the topics, but also because relatively less attention has been paid to the application of AI and Automation within Life and Healthcare, as compared to General Insurance.

Biography

Atreyee Bhattacharyya is the deputy chairperson of the Institute and Faculty of Actuaries' AI and Automation working party. In this role she has been facilitating efficient running of the working party and supporting the chair. She has led a subgroup of the working party in producing a research article and actively contributed to the outputs of the working party.

Atreyee currently works at Reinsurance Group of America (RGA) as a Health Actuary within Global Health. She is responsible for supporting and overseeing the health actuarial team in the Middle East region and for delivering global actuarial projects for digital health and control of claims leakage. In her role she is also supporting growth of global pricing tools with advanced capability of modelling techniques. Prior to joining RGA, Atreyee worked for Bupa where she managed the SME pricing team and was responsible for the SME PMI segment of business of Bupa UK from a pricing perspective. Before her time in Bupa, Atreyee worked for Vitality in the technical pricing team where she worked closely with the data science team. Her role involved extensive modelling using both traditional actuarial methods, such as GLM, and machine learning methods such as random forest and gradient boosting using R and Python. She also used dimension reduction methods such as principal component method while dealing with large number of geodemographic variables and used cluster analysis for customer profiling.

Atreyee has also worked with various external datasets such as credit score data and wellness data from wearable devices and looked at how the inputs from these data sources can predict health and hence the expected cost of claims.

Atreyee was a speaker in the Discovery Actuarial Conference (held in South Africa) in the years 2016 and 2017. In the 2017 conference, her team was the winner of the third prize. The topic presented was the use of AI (reinforcement learning) in price optimisation. The modelling was done on real life data and actuarial considerations were incorporated in setting the parameters and controls of the model.

Bálint Bóné is one of the members of the Institute and Faculty of Actuaries' AI and Automation working party. Similarly to Atreyee, he has led a subgroup of the working in producing a research article and actively contributed to the outputs of the working party.

Bálint works at SCOR SE as an Innovation Actuary, focused on the development and commercial implementation of data driven solutions for SCOR and its partners. The initiatives he explores utilize both traditional actuarial techniques and advanced data analytics, such as Machine Learning. He previously worked as EMEA In-force Management actuary, carrying out in-dept risk evaluations on the company's back book and providing technical project support across the region, for example driving the implementation of Robotic Process Automation in some of SCORS's financial reporting processes. Before his roles at SCOR he worked as an actuarial student in Legal & Generals Retirements, Financial Management department.