



Society of Actuaries in Ireland

Data Science Committee

Newsletter

December 2024

Committee Update

Dear all,

The Data Science Committee is happy to release our second edition of the Data Science Committee Newsletter. We would like to thank all readers for the positive reception we received following the release of our first newsletter in May.

Since May, our Committee has had a number of events and has been meeting regularly to discuss market and regulatory updates.

Throughout April and May, the committee hosted a Women in Data Science (WiDS) Datathon workshop. There were 12 participants in the Datathon, with 6 mentors provided by the SAI to support and guide each team. We would like to say thank you to all those who participated.

In June, the committee hosted the inaugural SAI Data Science forum. The event was fully booked and hosted a range of industry experts presenting on various topics spanning the EU AI Act, the use of

AI co-pilots in actuarial work, fraud detection using machine learning and AI models, underwriting using Gen AI, “old” AI versus generative AI, and AI’s role in the Health Sector.

Following the presentations, Kate Bell, a member of the data science committee presented the results of the Data Science Survey undertaken by the committee. The results were presented in comparison to the Actuarial Society of South Africa, to give an understanding on how the use of data science across SAI members compares with the use in other actuarial societies.

Finally, there was a panel discussion. The panel discussion included a group of industry experts with diverse backgrounds who offered unique and insightful perspectives on the use of data science and AI in actuarial work. The panel discussion offered the audience the opportunity to raise questions and start discussions.

In July, Alan McDonagh and Jennifer Loftus hosted a virtual webinar on Gen AI and prompt engineering, focusing on low code, and no-code solutions within an actuarial context. The event was a great success with a large attendance with several very thought-provoking questions raised.

Recently, the committee has issued a response to the Department of Enterprise, Trade and Employment’s consultation on the EU AI Act. The response was released by the Regulation and Professional Standard’s sub-committee.

We hope that you find this newsletter beneficial. If you would like to receive further information about the committee, please contact a member of the committee as listed below or contact info@actuaries.ie.

The Data Science Committee.

Committee Members

Ger Bradley (Chair)
Bence Zaupper (Deputy Chair)
Alan McDonagh
Aaron Mcglone
Anita Subramani
Brian Cunningham
Clare Reidy
Conor Cronin
Dara Roberts
Donal McGinley

Eilish Bouse
Grainne Mcguire
Hani Ghulam Abbas
Jack Harrington
James Bredin
Jean Rea
Jennifer Loftus
Kate Barry
Kate Bell
Laura Higgins

Laura Rossi
Luke Gaughan
Marian Keane
Noman Zafar
Octavio Palomo Sanchez
Pedro Ecija Serrano
Priya Mantri
Ramona Dolan
Robert Murphy
Sinead Heavey

Sub-committee Updates

Regulation and Professional Standards

The regulation and professional standards sub-committee has met regularly to help keep informed of existing regulation guidelines and any new and emerging regulation, feeding into the CPD subgroup on how these regulations should be implemented.

The committee has recently been discussing which professional bodies should be monitored.

Continuing Professional Development (CPD)

Apart from the various CPD events, the CPD sub-committee has developed an education syllabus for senior actuaries working with AI. In addition, they are working on establishing liaisons with non-actuarial data science groups across Dublin with a look to expand our visibility as a profession in the data science space, and to bring attention to any external data science events that SAI members may wish to attend.

Consumer Protection and Public Interest

The Consumer Protection and Public Interest Sub-committee are focusing on integrating data science responsibly within actuarial practices, with an emphasis on ethical data use and transparency. In particular, they are keeping a careful watch for topics where we as a profession may wish to express a point of view such as fair use of data, and technology such as Gen AI in the industry.

Newsletter

The newsletter sub-committee authors this newsletter to update SAI members on the activities of the Data Science Committee.

Study Groups

The Study Group sub-committee recently hosted the Women in Data Science (WiDS) Datathon workshop and will organise more in 2025.

Communications

The communications sub-group is currently reaching out to other SAI committees seeking collaboration opportunities.

GenAI – Prompt Engineering, Low Code & No Code Solutions

On Wednesday the 3rd of July, Alan McDonagh and Jennifer Loftus, both members of the committee hosted a virtual webinar on Gen AI and prompt engineering, focusing on low code, and no-code solutions within an actuarial context. Alan delved into the evolution of GenAI.

He brought us through the use of Chat GPT for generating and executing code and also analysing model outputs. Alan presented examples of approaches that were used in the Data Science Datathon (WiDS Datathon) by participants from the SAI and explored

open-source tools that can rapidly optimise models and perform data munging with minimal user input and mental anguish.

A recording of the event is available on [Actuview](#).

Regulation Update

EU AI Act: The EU AI Act was published in the Official Journal on July 12, 2024, and came into force on August 1, 2024. This comprehensive legal framework regulates AI systems, with a phased compliance timeline over three years. Key obligations include transparency, risk management, and incident reporting for high-risk AI systems.

SAI's response to the Department of Enterprise, Trade and Employment's ("DETE's") consultation on the EU AI Act: The regulation and professional standards sub-committee of the SAI Data Science Committee coordinated a response on behalf of the SAI to the DETE's consultation on the EU AI Act. The full response can be accessed [here](#).

In addition to answering the specific questions posed in the consultation, the response noted the following:

"We believe that a skilled workforce is essential for achievement of excellence in AI regulation. The journey from understanding the AI Act to achieving actual compliance will present significant challenges, demanding a broad range of skills. These include experience with complex models, a deep understanding of the commercial and regulatory environments, effective stakeholder communication, and managing ethical issues. All of these competencies are already central to the actuarial profession, which numbers over 2,000 members in Ireland."

The EU AI Act – New opportunities for actuaries in the second-line

Gary Stakem, David O' Sullivan (Forvis Mazars)

Gary and David presented an introduction to the EU AI Act and the opportunities it presents to actuaries. They provided an overview of what the EU AI Act will mean for various stakeholders within insurance companies and the skill sets needed. They also outlined the timeline associated with the EU AI Act and a description of the various risk levels within the Act, providing examples of High-risk AI systems.

A Day in the life of an Actuary with AI co-pilots

Jean Rea, Stephen Brennan, Iliana Simova (KPMG)

Jean, Stephen, and Iliana discussed integrating AI into our daily work as an Actuary. They presented a very interesting and useful example of how Microsoft 365 Copilot can be used to develop an expert judgement log template in line with the Central Bank's expectations. They also presented an example of how generative AI can be used to convert Excel workbooks to a Python script. The example provided showed a detailed step-by-step breakdown of how this methodology can be used to improve model building and output.

Insurance Claims Fraud Detection using ML and Deep Learning AI models

Graham Crowley, Dr. Pranav Sai S R (Deloitte)

Graham and Pranav discussed how machine learning and deep learning AI models can be used to enhance Insurance claims fraud detection. They started by presenting some figures on losses due to fraud in the Irish market and challenges in detecting fraud. They then presented an approach to developing a data-driven fraud model.

Transforming L&H Underwriting & Claims with Gen AI – where do we stand?

Vicky Gardner, Antoine Ly (SCOR)

Vicky and Antoine discussed how Life and Health underwriting and claims can be transformed using generative AI. They started by bringing us through the current underwriting process, highlighting that roughly 30% of applicants need to go through human review. They then presented a new underwriting journey using AI. Some of the benefits of this process were a reduction in human error, quicker manual underwriting/claims processing, and enabling underwriters and claims assessors to focus more on high-value tasks.

A game of two halves: similarities and differences between 'old' AI and Generative AI

Arlen Galicia Carreon, Vatsal Gomber (WTW)

Arien and Vatsal discussed the difference between traditional AI used in analytics and the new wave of Generative AI, providing examples of each. They also explored their distinct applications and discussed their strengths, weaknesses, opportunities, and threats that are unique to these technologies.

Looking back to look forward: Data Science and AI's role in the Health sector

Mary Coghlan, Luke Gaughan (EY)

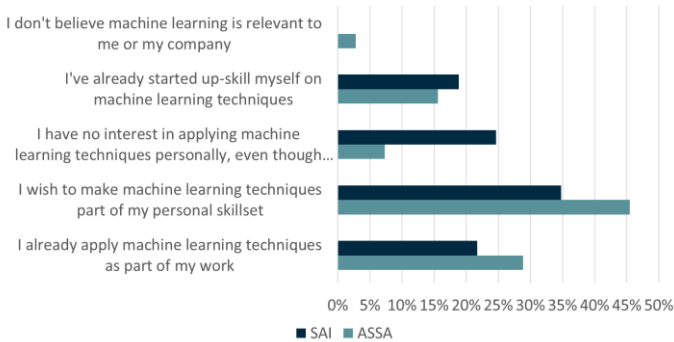
Mary and Luke discussed the role of Data Science and AI in the Health Sector. They presented current trends and challenges in the Health Sector and the benefits of Data Science being used in the industry to date. They then presented an example of Data science being used during Covid-19 to support health services. Mary and Luke also presented some potential use cases of Gen AI in the insurance industry.

In May, the SAI Data Science Committee issued its first (in what we plan to be annual) survey to members of the SAI to better understand members' perception and usage of advanced machine learning and analytics techniques within the profession. This survey was intended for all members of the profession, whether the member is currently using advanced machine learning and analytics techniques or not.

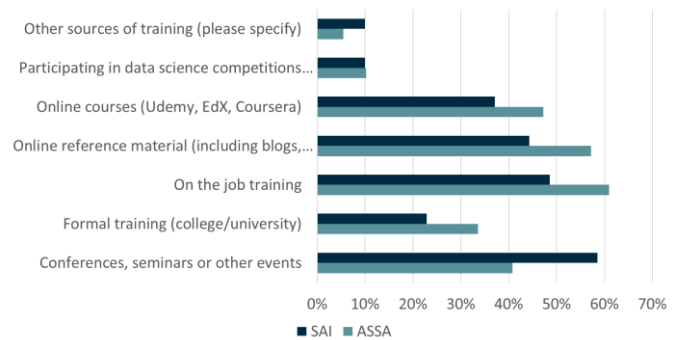
In the future, this information will be compared to past survey results to identify trends and report back to the members the adoption rates of various techniques, new and existing areas of application as well as factors hindering and accelerating adoption of these techniques by actuaries. As this is the first iteration of the survey and there is no past survey results, we have compared the results to a similar survey undertaken by the Actuarial Society of South Africa (ASSA).

Below are some key results of the survey, for more detailed information please refer to pages 115 – 138 [here](#).

Select the statement which is most descriptive of your current thinking around data science and machine learning.



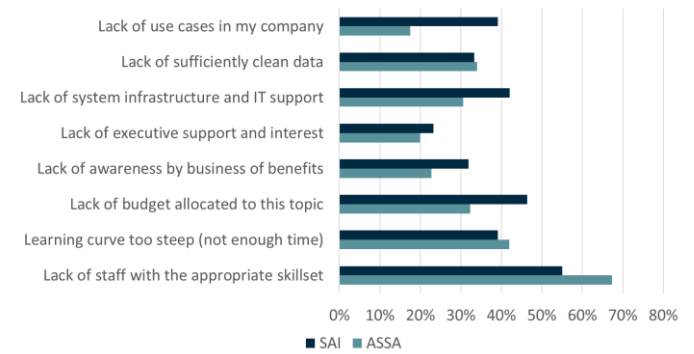
Which of the following methods you have found useful to find out more about data science, machine learning or big data?



Rate to what extent (if any) you think data science and machine learning have benefited your company.



Rate to what extent the following is hampering the adoption of data science and machine learning techniques within your organization?



Save the Date: CPD Event

SAI Data Science CPD Event 2024

A CPD event entitled "From POC to Production - A practical guide to deploying an AI model and how to manage compliance with regulations" will take place on Thursday the 12th of December in Deloitte Offices, 29 Earlsfort Terrace, Dublin 2. Make sure to save the date in your diary. Event details and reservations are now open [here](#).