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NO 614

INSIDE or

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DIARY DATES 2022

EVENT	DATE	VENUE
OR and Strategy SIG	5 May 2022	Online
Problem Structuring Methods SIG	6 May 2022	Online
OR in the Third Sector SIG	10 May 2022	Online
Western OR Discussion Society RG	11 May 2022	Online
Joint event: People Analytics SIG and WORAN	19 May 2022	TBC
Problem Structuring Methods SIG	7 June 2022	Online
Analytic Summit	5 July 2022	IET London (Hybrid)
OR in the Third Sector SIG	13 July 2022	Online
39 ISMOR	19-21 July 2022	Royal Holloway, University of London
Annual Conference OR64	13-15 September 2022	University of Warwick
Careers Open Day	16 November 2022	Millenium Point, Birmingham

Face-to-face events and training courses were suspended but hybrid an in-person events are now being trialled. Please check our website for the latest details or contact us at **event.enquiry@theorsociety.com** for specific enquiries.

Submitting Articles for *Inside OR*

Guidelines and format:
1) MS Word document of 500 words.
2) Articles may be edited for space, grammar and accuracy.
3) Inside OR adheres to the University of Oxford Style Guide.
4) Deadline for submissions for the June edition is 1 May.

Contributions should be submitted as an MS Word document to **insideor@theorsociety.com** and will be edited at the discretion of the editor. Please submit print-quality, high-resolution photos or graphics attached as one of these files formats: JPEG, TIFF, PSD, EPS or AI with the articles. Print-quality resolution requires a minimum graphic size of 640 x 480px or scans made at 300dpi. Do not submit copyrighted photos, graphics or content unless you are the copyright holder or have written permission for reproduction from the copyright holder, which should be part of your submission. Photos and graphics copied from websites are almost always not suitable for printing and are usually copyrighted by someone. The editor's decision on all contributions is final and no correspondence will be entered into.

About *Inside OR*

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Editorial

MAY 2022

JOHN CROCKER, FORS

Rosemary Byde, in her role as chair of Publicity, Membership and Website (PMW), asks in this month's Leader what are we paying our membership fees for (see page 8). I have been a member for almost fifty years and over that time, I would, no doubt, have answered that question in many different ways, probably as many different ways as there have been surveys. Although there have been many different reasons, there has always been two disappointments: the membership has barely increased in size since I joined and: as far as I can remember it has never played a prominent part in society (membership at the end of 2021 was 3,625, the highest it's been for more than 20 years - Marketing Manager). What do I mean by that? For example, have you ever seen a statement in the media from someone claiming to be an OR professional about the implications of the changes made in a Budget or the effects of some piece of legislation or the implications of the latest proposals on climate change? Do we all suffer from some form of "imposter syndrome"?

As, I am sure you all know, *Inside OR* is an relatively expensive luxury. It eats up more than half the income from our membership fees. At one time, most, or at least a fair proportion (whatever that means) of its costs were paid for by the advertisements it carried from software providers to recruitment agencies and many more but today all that is a thing of the past. The magazine has too small a readership, comes out too infrequently and is no longer seen as value for money by potential advertisers. In the survey aimed specifically at *Inside OR*, the vast majority of respondents had many positive things to say but as Rosemary says, less than a thousand members look at, let alone read the magazine. If our income was to fall by over £100K pa as it could very easily do as Open Access starts to bite, is *Inside OR* at the top, or close to top of the lists of ways to cut costs? Is it a luxury we will no longer be able to afford? If not, then how do we make enough money to continue to support it?

It would seem that the pandemic has effectively been downgraded to a minor illness. One potentially good thing that has come out of it is that we have discovered that not all meetings have to be face to face. It will be interesting to see how long it takes before we return to hundreds of people travelling thousands of miles to attend international conferences or even a handful of people travelling hundreds of miles to a committee meeting.

This month we sadly have to announce two more deaths. In 2001, EJIS acquired two new editors: Bob O'Keefe and Ray Paul, in one of those strange coincidences, both have died within weeks of each other. Our thoughts are with both their families. The second death we have to announce this month is another of our editors, in this case Professor Loo Hay Lee of the *Journal of Simulation*. Our thoughts are also with his family. (We hope to include full obituaries in the next issue.)

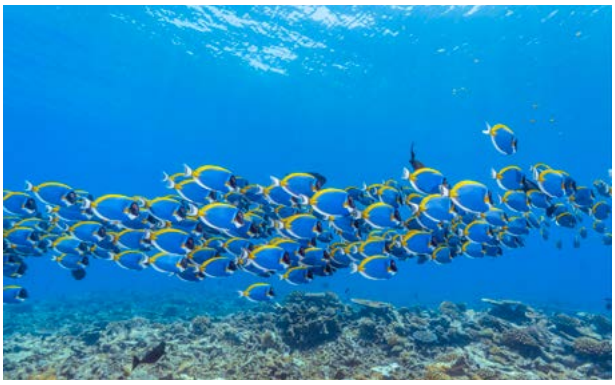
Contents

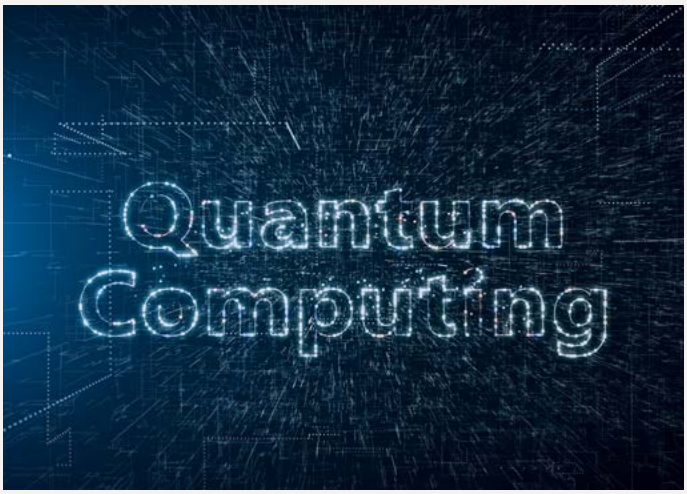
Drones learn from fish schools

An international team of researchers has used a 3D simulation to show that small fish swimming in a school can sense the position and tail beat of their neighbours via water pressure variation on the sides of their bodies.

This mechanism is thought to enable fish to maximize swimming efficiency in a group even in complete darkness. There is an emerging trend in robotics that will increasingly see modular designs of smaller robots that could operate in 'shoals' like fish working in groups, or swarms.

More at: bit.ly/3cayLhS



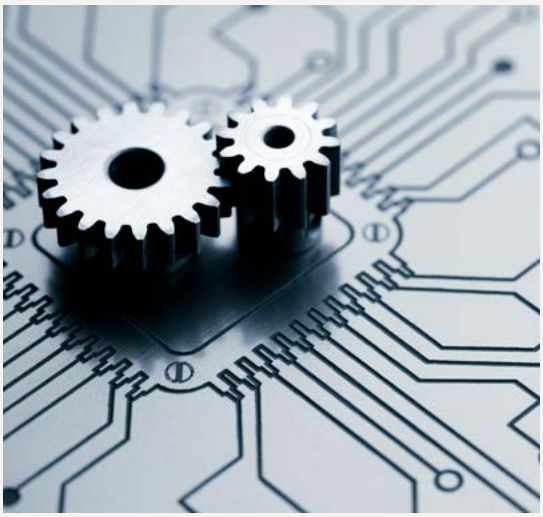


EPSRC funds EPIQC

A four-year EPIQC (Empowering Practical Interfacing of Quantum Computing) project will bring together quantum computing and ICT (information and communications technology) researchers from across the UK. Without an established ICT structure, quantum computing cannot be extended to the devices, networking and components that are commonplace in today's digital world.

EPIQC will bring together researchers to work on the interface of quantum computing and ICT focusing on optical interconnects, wireless control and readout and cryoelectronics.

More at: bit.ly/3D1YHsr

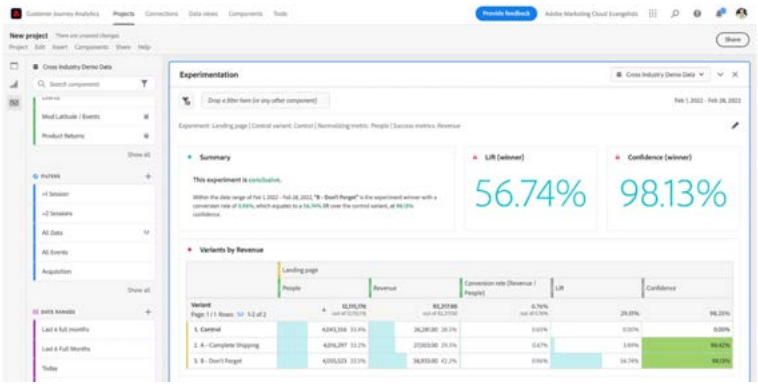


Narcissistic learning?

A simple electrical circuit has learned to recognise flowers based on their petal size without any help from a computer. The result demonstrates one way to avoid the massive amount of computation typically required to tune an AI system.

"It's a proof of principle," says Samuel Dillavou, a physicist at the University of Pennsylvania who presented the work at the annual March meeting of the American Physical Society. "We are learning something about learning".

More at: bit.ly/3N5Jzil



Enhancements for customer journey analytics

Adobe has announced new features for its Customer Journey Analytics tool for tracking customers across platforms, testing real-world scenarios and analysing their results. A company may want to see if a change in their mobile app reduces call centre interactions, for example, or see if a change to their website leads to more downloads of their mobile app.

It uses machine learning to find these kinds of correlations across vast data sets taking into account historical data, comparable campaigns and ongoing benchmarks.

More at: tcrn.ch/3N7SBvb

Universal Analytics gives way to GA4

Google has announced that Google Analytics 4 (GA4) will replace Universal Analytics (UA), the current version of Google Analytics. UA will be switched off on 1 July 2023.

GA4 comes with GDPR compliance and privacy in mind. No longer will it rely on IP addresses as a mechanism for tracking and the use of tracking cookies will become a thing of the past.

Google's ML algorithms will give users more detailed insights to help make more informed decisions.

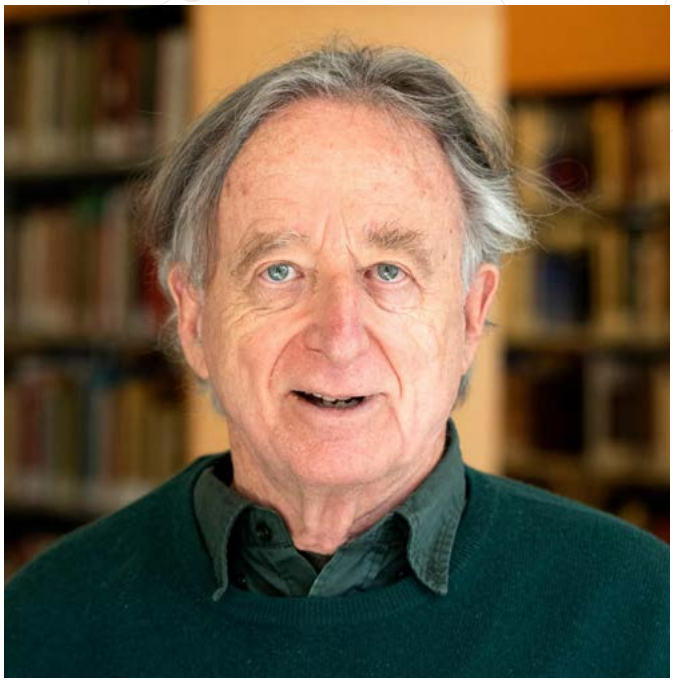
More at: **bit.ly/36B6O35**

Impact of optimisation

A commissioned study conducted by Forrester Consulting has looked at how decision-makers, specifically those involved with assets, operations and portfolio risk management, are using optimisation technologies today.

77 percent of businesses are adopting optimisation technologies to support their strategic initiatives or expand their current optimisation strategies. 64 percent are investing in people with mathematical optimisation expertise. 53 percent expect their use of mathematical optimisation to increase in a year and beyond. Over 50 percent consider mathematical optimisation to be critical to their business.

More at: **bit.ly/3qrajA6**



Dennis P. Sullivan awarded the Abel Prize

The Abel Prize is awarded annually to outstanding mathematicians. It was established by the Norwegian Government in 2002 and is managed by The Norwegian Academy of Science and Letters. This year, it has been awarded to Professor Dennis Parnell Sullivan.

Prof Sullivan is from the City University of New York and the State University of New York at Stony Brook. He was awarded the prize "for his ground-breaking contributions to topology in its broadest sense, and in particular its algebraic, geometric and dynamical aspects."

More at: **abelprize.no/abel-prize-laureates/2022**

Spaces on Twitter

Spaces is a useful feature of Twitter which provides a 'mini-conferencing' application to all users. Much like live-streaming before it, Spaces could be very useful, and there are various ways in which Twitter users can utilise Spaces to connect with audiences and build communities.

The social media platform is rolling out new analytics features, including data on the number of people that tuned-in, total speakers in the session, replays, duration and more. There is also monetisation tracking for ticketed Spaces, providing a range of options to help Twitter users manage and grow their Spaces approach.

More at: bit.ly/3JNupfK

Head of Ukraine's research agency calls for international help

Following the Russian invasion of Ukraine on 20 February 2022, Executive Director of the National Research Foundation of Ukraine (NRFU) Dr Olga Polotska has appealed to the international community to help her country's scientists.

Because of the fighting, many scientists have either fled Ukraine, gone into hiding or been killed. The NRFU has also had to pause its funding for 269 projects that were meant to commence on 1 March. "Everything has stopped," Dr Polotska said. "Ukrainian scientists will need a lot of support."

Read more at: bit.ly/3uHaqJ5

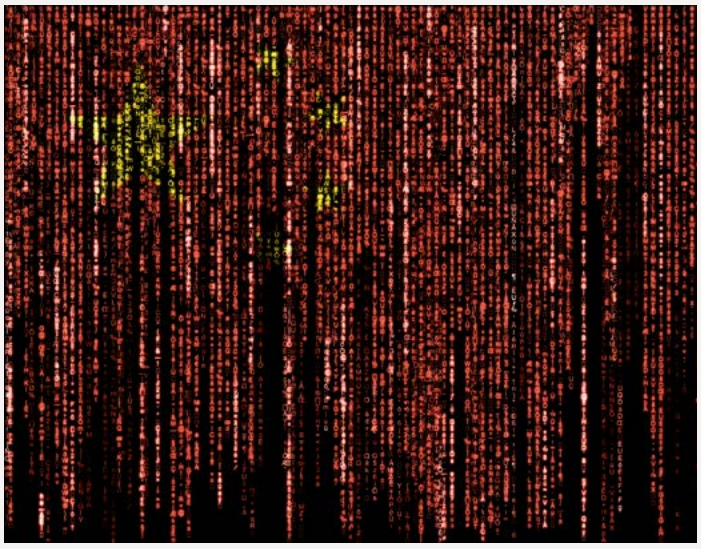
China to regulate use of algorithms

A new set of Chinese regulations based on the EU's AI Act is designed to restrict tech companies' use of algorithmic recommendations.

The regulations stipulate that tech companies have to inform users "in a conspicuous way" if algorithms are being used to push content to them. There are also provisions against generating and aggregating fake news and against exploiting workers, like delivery drivers, by using algorithms.

Scholars at Tsinghua University and Nankai University have been involved in advising senior Chinese leaders to be open-minded about emerging AI technology.

More at: bit.ly/3CeZ80C



OR64:

OR for a better world together

The OR Society's annual conference

13-15 September 2022

The University of Warwick

OR64 Chairs Dr Nalan Gulpinar, Dr Jeremy Bradley and Dr Xuan Vinh Doan invite you to contribute to the annual conference of The Operational Research Society.

We would like to welcome a diverse and interdisciplinary OR community spanning from academia to practice dealing with theory, methodological development and applications from various business, public and private sectors.

This prestigious event is a great opportunity to bring together distinguished researchers and practitioners from academia and industry to exchange knowledge, ideas and results in a broad range of topics relevant to OR.

Returning for OR64, two sessions will be organised by Early Career Researchers and the Women in OR & Analytics Network (WORAN).

Plenary Speakers:

In parallel to the conference theme, we are happy to host the four prominent plenary speakers:

Professor Dick den Hertog,
Science-to-Impact Director of the Analytics for a Better World Institute, University of Amsterdam.

Dame Julie Moore,
the former Chief Executive of University Hospitals Birmingham NHS Foundation Trust.

Dr Dan McGonigle,
Head of Systems, Innovation and Futures in the Department for Environment, Food and Rural Affairs (DEFRA).

Dr Betty Schirrmeister,
Head of Data Science at MoneySuperMarket.

Conference Programme:

The confirmed streams so far include:

- AI and Machine Learning
- Applications in Strategy
- Combinatorial Optimisation
- Contemporary Project Management
- Data Envelopment Analysis
- Fairness and Bias in AI and ML
- Financial Modelling
- Healthcare Operations Management
- Hybrid Modelling and Simulation
- Information Systems
- Interaction Between Humans and Optimisation Algorithms
- Location Problems
- Optimal Learning and Applications
- Optimisation under Uncertainty
- OR for Sustainable Approaches in Community Contexts
- Post-pandemic Advances in Teaching and Learning OR and Analytics
- Reinforcement Learning
- Reliability and Applied Stochastic Processes
- Retail Optimisation
- Revenue Management and Pricing
- Soft OR and Problem Structuring Methods
- Supply Chain and Logistics Analytics
- Sustainable Supply Chain Management
- Systems Thinking
- Making an Impact - Workshops and Making an Impact - Posters

With a full academic programme and social events being organised, OR64 promises to be an exciting event. We look forward to seeing you all at Warwick in September!

Call for papers is now open.
Visit www.theorsociety.com/OR64

Membership fees: what are you paying for?

ROSEMARY BYDE, CHAIR OF PMW COMMITTEE

This question I have posed may seem to have an obvious answer, but this is the nub of the Publicity, Membership and Website (PMW) committee deliberations at the moment!

Our thoughts have turned to the annual question of membership fees for the next financial year. Last time we increased in line with CPI, which was our medium term strategy. That 'expired' last year so now we also need to review and agree a new one. Whilst there is a threat to the Society's significant income source from the moves towards open access for publications, we have been looking at alternative revenue sources; we are not alone in this as the informal research on the future of scholarly societies demonstrates.

For some time, we have been working to increase our membership numbers, both by attracting new or lapsed members and retaining the ones we already have. We have done well over the last two years to grow a little, thanks to our efforts to market and promote both the Society's work and member benefits. There have also been improvements to the membership journey, which is all about how smooth our processes are and how well we engage with you.

However, inroads into generating revenue that comes anywhere near what we may lose from publishing are very slight.

To the original question I posed; maybe fees are solely to provide an equivalent direct benefit to individual members. Or perhaps they should be funding wider charitable, campaigning and educational activity of the Society. If so, what is the balance between individual and Society? To give you some insight into our thinking, here are some live issues that we are debating!

- How do we compare to similar societies in the UK? (The answer is – we are relatively good value for money!)
- Has our member offering significantly changed to justify (in either absolute or psychological terms) any increase above inflation?
- Is membership purely 'transactional'? Do members join for other less direct or tangible reasons?
- What is the role of professional accreditation in creating value and encouraging membership? How do we generate value in this to employers?
- 20-25 percent of our members join via corporate membership. Should we change the corporate charging structure before any changes for individuals, who may be more affected by cost of living increases?
- How can we focus on creating higher retention rates?
- Can we look at the other side of the equation and reduce costs e.g. changing our magazine offering? (There are pros and cons to this, but we do know that at most, only 25 percent of you are reading this)

- What are the alternatives to income generation via membership?
- Should we be having a broader conversation about the Society's activities, what we generate income for and where should it come from, how much we 'need' and how we achieve our charitable purposes? (The advancement of knowledge, interest and education in OR.)

As we discuss these, we are coming up with a set of potential options for action, which may not be mutually exclusive. As we agree what we believe to be prudent, fair and equitable, we will of course be letting you know.

Finally, I would like to plug the member survey that is either coming out shortly, or may already have landed in your inbox by the time you read this article. We have spent significant time refining the questions, so it will look very different to anything you may have filled in for us before. It's a lot shorter and more targeted, and we've used the input from a focus group to inform what we're asking. Please fill it in, to help inform our deliberations!

As always, if you want to contact me with any feedback about membership of The OR Society, my inbox is always open.

The value of process simulation recognised with a haul of international awards

Simulation specialist, Simul8, has won a number of international awards, including Tech for Good and Crisis Response of the Year, following its work in offering covid-related pro-bono support during the pandemic.

Over 150 organisations around the world, including hospitals and vaccination clinics, benefitted from Simul8's improved workflow processes and operational efficiency while at the centre of the pandemic and having to make tough decisions daily.

Having given away more than £100,000-worth of free software licences and around six weeks of pro-bono consulting, Simul8 was also honoured for its 'people over profit' attitude by the Better Society Awards, Best in Biz Awards and Stevie Awards for Women in Business.

Process simulation was used by hospitals to ensure that updates to ICU capacity would be sufficient to handle the added strain on resources, while cold supply chain expert Controlant was able to triple production of its specialist IoT trackers that were vital in the shipment of the vaccine. Simul8's software was even used to support vaccination rollouts at several international hospitals including Saint Anthony in Chicago and St. Luke's University Health Network in Pittsburgh, as well as planning overflow hospitals in major cities and managing testing processes in labs. "In so many cases where organisations found themselves facing unprecedented operational challenges during the pandemic we knew that process simulation could offer vital support. Making sure that we reached out to as many of these organisations that were contributing to solving the health crisis as possible was a big undertaking but one that we are very proud of. The whole Simul8 team has worked tirelessly to support numerous organisations around the world", said Laura Reid, CEO at Simul8.

"It's fantastic that the value of process simulation has been recognised by several prestigious awards both in the UK and internationally, and we are incredibly proud of the team for not only making a positive difference in challenging times, but highlighting the power of simulation and operational research to a wider audience."

Read more at: **bit.ly/3CfgQkC**

An update from HORAF

FRANCES SNEDDON AND DUNCAN RUSSELL, HORAF CO-CHAIRS

In this article, we will give a brief introduction to the Heads of OR and Analytics Forum (HORAF) and then highlight some of the recent and ongoing topics that the group has been discussing.

What is HORAF?

HORAF is a senior practitioner forum, with representation from organisations across the UK economy including from industry, commerce, consultancy and the public sector. HORAF currently has around 50 active member organisations. In addition to our core practitioner membership, HORAF also connects strongly to the ORS; it is not a formal ORS grouping, but benefits from very close working relationships, with both the ORS President and Executive Director having a standing invite to meetings. HORAF also works closely with academic colleagues via COPIOR (the Committee of Professors in OR) especially on topics of mutual academic/practitioner interest.

How does HORAF work?

HORAF provides a focus for the interests and concerns of heads and senior leaders of OR, Analytics, Data Science and related practice such as in areas like Machine Learning and Artificial Intelligence (ML/AI). The group is led by two co-chairs (currently, **Frances Sneddon** from Simul8 - Frances.S@SIMUL8.com and **Duncan Russell** from OCADO Group duncan.russell@ocado.com) with support from a wider Steering Group and with **John Hopes** hopesjohn21@gmail.com as our Secretary.

HORAF meets four times a year and enables members to:

- Keep in touch with what is happening in similar organisations and across UK practice.
- Explore common concerns by sharing insights and knowledge with peers.
- Benchmark practice and outcomes.
- Build personal networks across all sectors of the economy.
- Access HORAF resources and opportunities online.
- Liaise with and learn from academic researchers.
- Influence and support the wider profession.

Recent and ongoing HORAF activity

So, what are the key areas of recent HORAF activity? Some examples are:

- **COVID-19**
  Unsurprisingly, a major area of recent discussion has been – and continues to be – around COVID-19, especially its impact on both the types of work that

HORAF organisations have been undertaking and the way in which that work has been conducted. Discussions have included the implications of lockdown and working from home on practice; and, more recently, what any "new normal" will look like for example in terms of hybrid working and client-stakeholder interaction. Equally, COVID-19 has affected HORAF and has led to meetings being held online for the past couple of years, whilst travel and face-to-face meetings have been problematic – HORAF has remained vibrant throughout the period and any future state is likely to include a balance of physical and virtual meetings.

- Leadership, in its many guises, is a frequent topic of conversation at HORAF with, for example, a session on leadership-models held at our Feb '21 meeting. This allowed discussion of many common themes including: the balance between "inward" activity (ie managing the local team) and outward-facing work (eg representing the value of OR at management-level within the organisation and beyond); the perpetual(!) issue of what the OR/analysis activity is called and how it is best represented in the organisation; and how OR leaders maintain their credibility and capability in OR alongside their leadership roles. HORAF will undoubtedly continue to discuss aspects of leadership in the context of OR practice in its coming meetings!

- **Recruitment, retention and skills development.** Another regular HORAF topic is around the skills that OR leaders need in their practitioners and how best to recruit, develop and retain appropriate staff. Comparing the approaches adopted by member organisations has allowed a degree of benchmarking and best-practice sharing. It also allows a valuable discussion with COPIOR, for example, with respect to what skills OR leaders would like to see taught on degree (and higher) academic courses. And, HORAF has also worked closely with the ORS and GORS (the Government OR Service) on relevant qualifications and awards, in particular: the OR L7 (MSc-level) apprenticeship that is now in place with a first GORS cohort; a L6 (degree-level) trailblazer group; and, the data science related awards being put in place through the ORS role in the wider alliance of data science professionals.

- **Climate change and Net Zero.** HORAF also addresses current topics of interest, in particular looking at where OR can help and considering how member organisations are engaged. One such recent topic has been around climate change, where we hosted a session that included a leading academic from the Alan Turing Institute as well as member perspectives. This has resulted in a HORAF position-statement and work to develop an article for the ORS *Impact* magazine.

- **Technical sharing.** HORAF also regularly includes an opportunity for member organisations to present on a current topic. Frequent topic areas include: the use of AI/ML et al – an area that most members are engaged in; and Behavioural Science, including the linkage and complementarity between softer/qualitative and harder/quantitative methods.

And a host of others! The HORAF agenda is, naturally, driven by its members' interests. The examples above are also complemented by, for example:

Workshops – work around Diversity and Inclusion has, for example, been benchmarked and shared.

Soft OR – HORAF undertook a review of how such methods are being used across practice, which was collated into a paper that was presented at OR63.

Emerging topics of interest – For example, HORAF has recently been discussing what the potential National Academy of Mathematical Sciences (NAMS) means for practitioners and how best members should get involved and influence NAMS.

Regular round-table updates on members' interests and challenges, which are also used to help set HORAF's forward agenda.

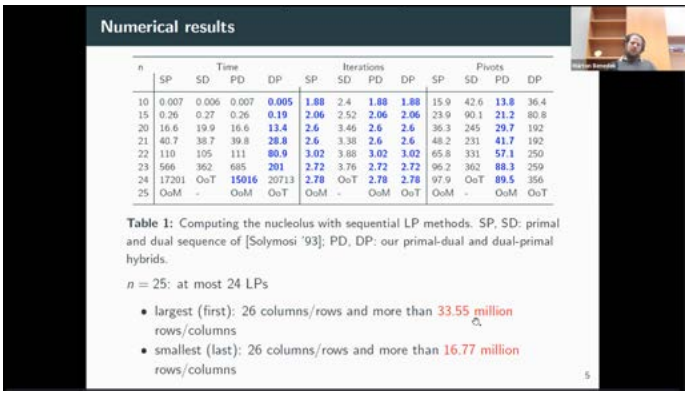
And finally

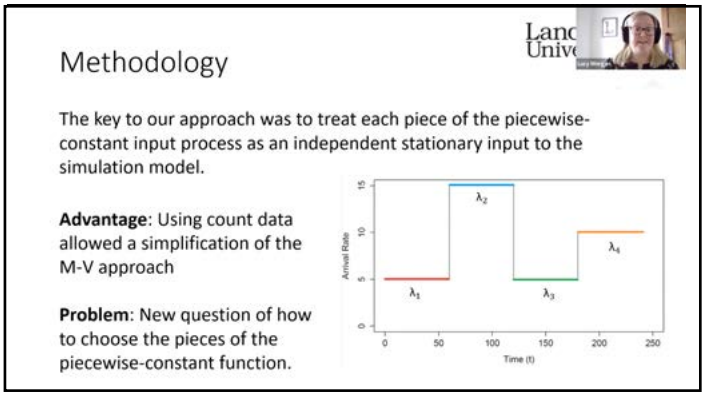
The future for HORAF is positive – there are always topics of wide interest to discuss! One that is currently in the pipeline is to share practice across member organisations around the wider benefits that organisations offer (especially the non-salary component). If anyone wants to engage with HORAF or would like to know more – either individually or at organisation level – just get in touch.

Doctoral Award Presentations at the Beale Lecture

NIGEL CUMMINGS

At this year's online Beale Lecture, we were entertained by not one but two Doctoral Award winners' presentations.





Márton Benedek

Dr Márton Benedek is a junior research fellow at the Centre of Economic and Regional Studies, Institute of Economics in Budapest, working in the Mechanism Design research group, as well as a teaching assistant at the Corvinus University of Budapest. He obtained his PhD at the University of Southampton.

Dr Benedek gave a talk entitled, "Computing the nucleolus: misconceptions, efficiency and applications" in which he said that computing the nucleolus of cooperative games (with transferable utilities) requires finding the unique point of a bounded polytope of linear dimensions (in the number of players) that lexicographically minimises the non-increasingly ordered vector of excesses of all groups of players, a vector of exponential size (in the number of players).

Mainstream approaches traditionally break down the lexicographical minimisation problem into solving a series of linear programs (LPs), a series that is linear in size, where the size of each LP is still exponential.

He then spoke about how he had introduced a state-of-the-art lexicographical descent method for the computation of the nucleolus as the first algorithm guaranteeing strict lexicographical improvement of the excess vector in every (pivot) step. The efficiency of the method is demonstrated through computational tests as well as new areas of application of the nucleolus arising.

Lucy Morgan

The second 2020 Doctoral Award winner was Dr Lucy E. Morgan, an AI & Optimisation Research Specialist in Applied Research at BT and a Visiting Lecturer at Lancaster University.

Her talk, "Quantifying and reducing input modelling error in simulation", described how input modelling error was the uncertainty in the output of a simulation that propagated from the errors in the input models used to drive them. When the input models are estimated from observations of the real-world, system input modelling errors will always arise as only a finite number of observations can ever be collected.

Dr Morgan's research is primarily focused on developing new methodologies for understanding error in the output of simulation models. She studied for her PhD at STOR-i CDT at Lancaster University.

According to Dr Morgan, input modelling error can be broken down into two components: variance, known in the literature as input uncertainty and; bias. Input modelling error arises because you can never collect an infinite amount of data from which to estimate these input models, so because of that, the estimates of such input models are never going to be correct.

As an example, it is common practice to look at arrival rates for different times of the day, for example to an A&E department. This can lead to step changes from one period to the next when, in reality, the transition is quite smooth. One way to model this more realistically, and hence possibly more accurately, might be to use splines to smooth out the transitions.

Videos of the talks will appear on The OR Society's website in due course. Check **www.theorsociety.com/beale** for details.

Professor Val Belton's Beale Lecture 2022

NIGEL CUMMINGS

The OR Society's Beale Medal is awarded each year in memory of the late Martin Beale for an outstanding contribution to operational research.

This year's Beale Memorial lecture, "Multicriteria Matters", was given by Professor Val Belton of University of Strathclyde. Over the past 30 years, Professor Belton has established an international reputation for outstanding and innovative research in multiple criteria decision analysis (MCDA).

She is widely recognised as one of the leading researchers of her generation in this field having published over 80 scientific papers in all the leading OR journals and has supervised a large number of PhD students.

In addition to her theoretical academic contributions, her work has been hugely influential on practice and she has collaborated with a wide range of different organisations. She also developed the MCDA software VISA; which aims to make MCDA methods accessible to non-expert users in a user-friendly platform.

"To me multicriteria matters very much, it is a very important way of looking at things".

Her interest in MCDA was sparked some 44 years ago by a short elective class as part of the Lancaster MA in OR. This led to a concerted effort to find a job which would enable her to learn more about its use and practice. This led to the discovery that few organisations had heard of MCDA… but at least her efforts lead to dissemination of information about both its existence and the nature of it.

Her first job was for the Civil Aviation Authority: "It was to do with the North Atlantic track separation standards for aircraft as they fly back and forth across the Atlantic. Safety was a very important consideration but also efficiency. What they were actually modelling was the tracks that the aircraft were supposed to be following, in a parallel process across the Atlantic. From time to time, something went wrong. Maybe they went off track. Maybe they thought there was something coming in the other direction. There never were any accidents – I think the significance of it still stays with me as really important and more important than most of the decisions I have looked at with MCDA since then."

After this time at the CAA, she went on to do a PhD at Cambridge where she was introduced to Saaty's Analytical Hierarchy Process and the ELECTRE Outranking method of Bernard Ray. (Not many methods to master compared to today.)

The principal aim of her research has been to explore the value of MCDA methods and to answer the question. “Does it matter which method is used?”

Today it was probably more difficult to take a PhD focused on comparing MCDA methods, as there are now some 372 methods listed.

In essence, MCDA, is about explicit analysis, combining objective measurement of performance with subjective preferences and priorities in order to help individuals or groups take account of multiple conflicting factors in decisions that matter. MCDA enables decision makers to learn about the material, organisational, social and personal considerations and to explore different perspectives to complement and to challenge intuition.

Her personal perspective on MCDA philosophy, methodology and methods was that… From a philosophy point of view, it provides an overarching belief about the nature of the aid provided, it is facilitative rather than prescriptive or predictive. It is constructive too, because preferences are developed in it, rather than extracted and potentially it is transformational, because it seeks to challenge intuition.

From a methodology perspective, the wider process within which MCDA is embedded, is participative, interactive and iterative – involving key stakeholders. It pays attention to problem structuring, social process and the use of technology. Methodologically it is principally simple multi-attribute value analysis – but informed by knowledge of other MCDA approaches.

Val spoke about VISA, software which she had helped develop and still uses.

Professor Belton’s talk provides a comprehensive description of the use of MCDA, it also features slides which further explained how MCDA can be applied to solve many of today’s problems.

You can see and hear Professor Belton’s Beale Memorial 2022 talk at: **youtu.be/XEVb-4NCLY4**

Two types of stories that data scientists can tell

VINCENT CHARLES, ALI EMROUZNEJAD AND TATIANA GHERMAN

Almost a decade ago, the data scientist job was named the sexiest job of the 21st century by *Harvard Business Review*[1]. Today, this assertion still holds.

One of the most fascinating aspects is that there is no single career path to becoming a data scientist. Data scientists can emerge from virtually any field, from computer science to linguistics, because data science is simply such a vast domain that builds upon… well… so many other domains.

The skills of data scientists

Many perceive "data science" as a hard-core, quantitative discipline, accompanied by massive spreadsheets, complicated computations and algorithms, mathematics, statistics, programming and many other multi-disciplinary skills.

However, data science is much more than that. While mastering hard skills is necessary, it is not sufficient. Data scientists must also develop soft skills such as: creativity, business acumen, communication and presentation skills, teamwork, flexible learning, aptitude to learn and self-learn, intellectual curiosity, scepticism and perseverance. These can only be acquired as part of a continuous learning process.

Studies have shown that soft skills are not only necessary for effective and efficient work, but they are also highly valued by employers.

Although data science is beneficial for analysing and drawing conclusions (insights) from data, in the end, it does not matter how thoroughly one analyses the data if one cannot communicate the results and conclusions to a specific audience in a compelling manner that drives action. Only then will the insights gleaned from the data be actually useful. This is why both sets of hard and soft skills are needed and where the art of storytelling comes into play.

Data storytelling is about giving your data a voice!

In a recent post published by Harvard Business School[2], "data storytelling" was defined as "the ability to effectively communicate insights from a dataset using narratives and visualizations. It can be used to put data insights into context for and inspire action from your audience".

Data storytelling is conceptualised as a notion that exists at the crossroads of three crucial elements:

1. data and associated data analytics (which can range from descriptive to diagnostic, predictive, prescriptive and more recently, cognitive analytics),
2. narrative (a storyline used to convey the data insights, the context in which these insights 'sit', and the actions one advocates for and hopes to inspire in their audience), and
3. visualisations (a way to communicate the analysis and findings visually via dashboards, maps, charts, infographics, and so on).

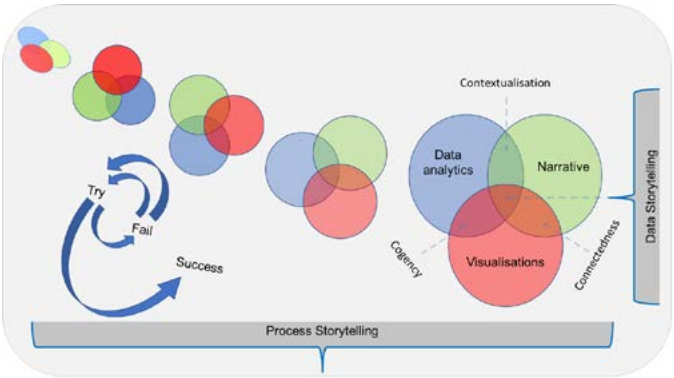
A narrative that accompanies data analytics will proffer the means to present the insights obtained in a way that the audience can understand and better connect with. By providing

background information, that helps create a storyline, ensuring the CONTEXTUALISATION of the results.

Visualisations, on the other hand, will make it easier for the audience to spot the trends, patterns and outliers in the data, as well as those that emerge from the analytics performed. A picture remains worth a thousand words! It is easy to get lost in the jumble of output tables containing the results of the analysis, so, visualisations will aid in dealing with the complexity dimension that comes with analytics, ensuring their COGENCY.

However, visualisations also need to 'meet' the narrative, because positioning the visual imagery in context ensures not only that the audience better understands what they are looking at, but also that the analysis performed does not remain an isolated exercise, offering a more holistic view of the insights put forward (CONNECTEDNESS).

It is, thus, easy to see why data storytelling is a multidimensional concept.



It is critical to run the right analytics and come up with informative results. It is also crucial to communicate them effectively, and data storytelling can help with that by concentrating on contextualisation, cogency, and connectedness.

Overall, through storytelling, the audience will be able to much better grasp the value-added that data analytics has to offer and how it can become a competitive advantage for the organisation.

Data storytelling is only half the story, there is also process storytelling!

The audience is different: while data storytelling is aimed at the actual users of the insights gained from analytics, process storytelling is aimed at the data scientists themselves.

Process storytelling is about giving your intervention a voice!

Data analytics does not occur in a vacuum, but rather as a result of human engagement. There is a story about the content that analytics communicates and there is a story about the intervention that led to the analytics in the first place.

Traditionally, reporting the first type of story has always been deemed more important in writing; at least, as far as the (academic) literature has been concerned. But inherently, there is a bias built within and propagated: they are all success stories. Indeed, it is important to learn from interventions that were successful and produced excellent analytics that impacted practice in a truly meaningful way. But to get there, it's never smooth sailing!

When only successful interventions are published, what that translates into are procedures being described in a linear fashion, from start to finish, as if there were no trials and errors, no debugging programmes and syntax correction sessions… no errors of any kind.

As practitioners will be able to attest, however, when one designs, builds, and deploys analytical models, one will most likely fail countless times before succeeding (Eureka moment!). A real-life data science project rarely proceeds in a straight line; instead, it resembles a Plan-Do-Check-Act loop, which continues until a satisfactory outcome is achieved. In this sense, a plan of action (Plan) gets started, which then gets executed (Do), the results are observed (Check), and lastly, actions are taken on what is learned (Act).

The story of how analytics is carried out (PROCESS) is just as valuable as the story that the analytics communicates (CONTENT).

Reporting how the practice of data science is actually done in practice is a story data scientists can tell to help other data scientists learn from one another and improve their data science skills in less time.

In conclusion

Data and process storytelling are important skills that data scientists can acquire and exhibit. And although the audience is different for each story, it is sensible to treat the two sets of skills as intimately intertwined rather than separately applied.

References:

[1] bit.ly/3wSQbLh

[2] hbs.me/3qTsRJA

Celebrating Neurodiveristy Week 2022

NICOLA MORRILL, BOARD DIVERSITY CHAMPION

2022 was the first year that The OR Society marked 'Celebrating Neurodiveristy' Week.

The week was founded in 2018 by Siena Castellon with the purpose of helping the world to understand, value and celebrate the talents of neurodiverse minds by focussing on 'flipping the narrative' and focussing on strengths.

Neurodiversity refers to different ways brains process information. It is an umbrella term that covers Attention Deficit Hyperactivity Disorder (ADHD), Autism, Dyslexia, DCD (Dyspraxia), Dyscalculia and Tourette Syndrome.

Around one in seven people have a neurodiverse condition (**www.lexxic.com/neurodiversity**).

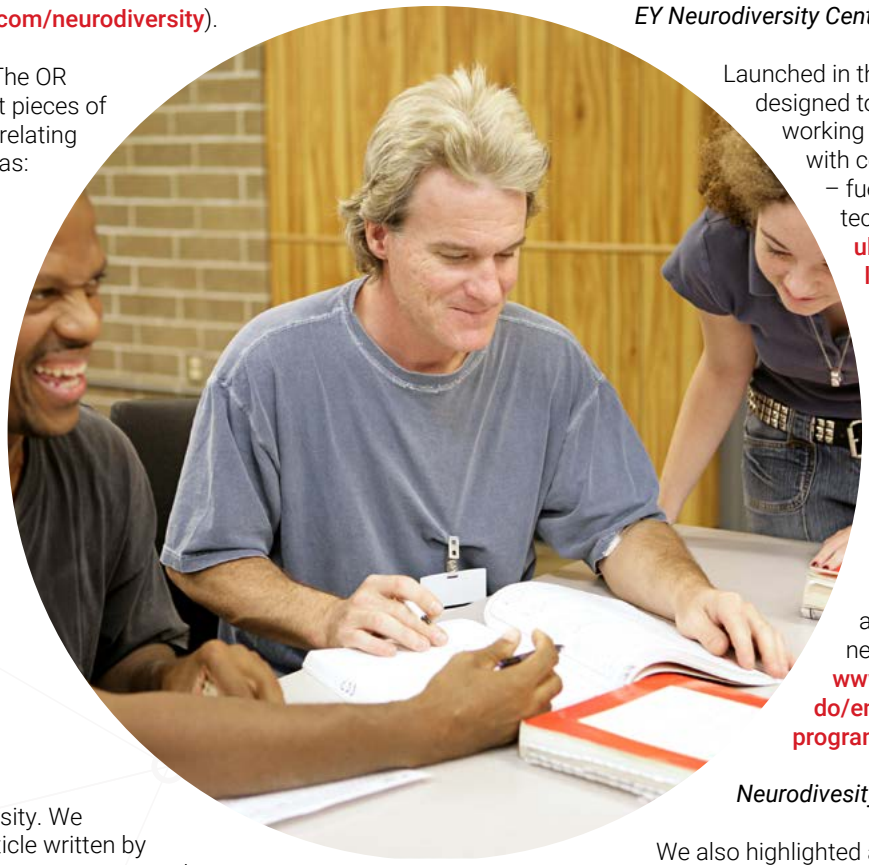
Throughout the week, The OR Society shared different pieces of information on Twitter, relating to neurodiversity, such as:

Increasing understanding

We shared a free programme of virtual events that was being run over the week (**www.neurodiversityweek.com**). Although the events are now complete, the site has links to useful resources and an opportunity to sign up for the 2023 event.

De-bunking myths

There are many myths surrounding neurodiversity. We provided a link to an article written by BUPA that highlights some common myths around neurodiversity and debunks some of these (**www.bupa.co.uk/business/news-and-information/neurodiversity-myths**).



The myths shared include:

- Neurodiversity only focuses on autism.
- Neurodiverse people are all alike.
- Neurodiverse employees are unable to thrive in the workplace.
- Neurodiversity is a mental health condition.
- Neurodiversity only affects men.
- Highlighting organisations

Recognising the value of recruiting neurodivergent people, an increasing number of organisations have developed bespoke recruitment programmes. Two examples are:

EY Neurodiversity Centre of Excellence

Launched in the UK, this NCoE is designed to create a supportive working environment for individuals with cognitive differences – fuelling innovation in technology. **www.consultancy.uk/news/30210/ey-launches-uk-neuro-diverse-centre-of-excellence**.

The National Autistic Society has an Autism at Work Programme, which aims to increase the number of autistic people in sustainable paid employment. It does this by making employers aware of autistic talent and the benefits of a truly neurodiverse workforce. **www.autism.org.uk/what-we-do/employment/autism-work-programme**

Neurodivesity in Business launch

We also highlighted a recently launched charity, Neurodiverstiy in Business (NiB) (**neurodiversityinbusiness.org**), which has many OR employers as its founding members. NiB's goal is to improve the working lives of neurodivergent people, helping to unlock the unique

and innovative contribution they can bring to the business world and society. It is a forum and for organisations to share industry good practice on neurodiversity recruitment, retention and empowerment.

Examples of Neurodiverse People

Towards the end of Celebrating Neurodiveristy Week, we shared examples of well-known neurodivergent individuals: Alan Turin, Albert Einstein, Henry Ford, Richard Branson and Bill Gates. Find out more about the achievement of these individuals at: **www.ayoa.com/ourblog/achievements-founded-by-neurodivergent-individuals**

The founder of the Week is a young lady called Siena who really enjoys maths and physics, and is now studying the latter at university. She started the week to change how neurodivergence is thought about and much of this is borne out of challenges she encountered through school. It is highly likely that, through her work, Siena has helped those studying and hoping to study OR core subjects. Something for us to celebrate!

Over to You

We are keen to hear from you – how can we ensure we are being as inclusive for our neurodiverse members as we can be? What should we consider across all areas of the Society to support neurodiversity – this could be events, website, publications or training. We are keen to hear, so please do get in touch.

Also, we see growing support in the business world and have not (yet) come across a similar level of support in academia. We are keen to hear more about what is going on in our academic institutes to support neurodiverse people.

SimulAi

POWER TO DIAGNOSE THE KNOWN AND PREDICT THE UNKNOWN

DSE Consulting is now SimulAI

DSE Consulting has transitioned from pure Simulation to a full AI technology stack company.

For its 15th anniversary, DSE Consulting has had a rebrand. Now there is a new look for SimulAi including updates to existing social media, a new logo, new website, and more appropriate marketing that is usefully targeted at our academic and industrial customers.

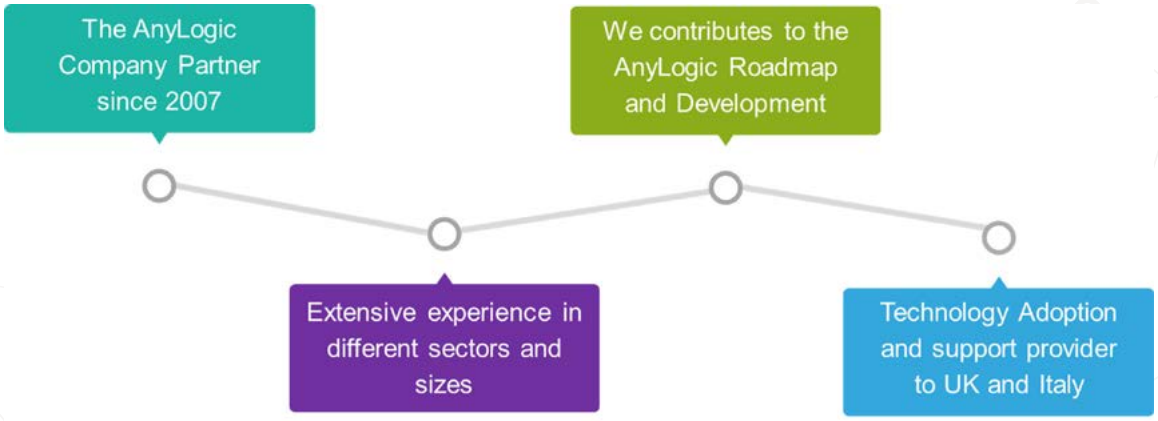
At our core, we haven't changed. Our mission remains the same. SimulAi aims to be a trusted advisor of simulation, deep reinforcement learning and optimisation technologies and an instrumental support-services partner in the use of all model-focused analytics. Our vision for the company has changed somewhat in the preceding five years as we have grown technically and from a business development perspective.

15 years ago, we began bringing 'multi-method' simulations to a wider audience, through training and mentoring to improve our user's experiences, and help people to reach their modelling goals.

However, over these 15 years we have grown as a company, our product set has expanded with new simulation software and optimisation methods and an enhanced ability to produce proof of concept models. Our clients have grown as well, many of them have been with us for years, they are more confident in simulation and AnyLogic has become part of their day-to-day work as they reach strategic, tactical and operational milestones.

This has allowed our vision to grow organically and sustainably into guiding our partners in their organisational transition from simulation experts alone, into a new era of AI-driven modelling that supports a more informed, adaptive and agile way of decision making.

To find out more, visit **www.simul.ai**



EURO Practitioners' Forum

(formerly EURO Working Group on OR in Practice)

RUTH KAUFMAN OBE FORS

Every first Friday of the month, at 09:00 UK time, the Euro Practitioner's Forum organises a webinar. Talks are tailored to be of interest to practitioners with presentations that are related to real life use cases and challenges encountered by OR practitioners, techniques and developments dealing with practical issues or academics' research that can benefit practitioners in the short and mid-term.

So far this year, we have heard from speakers from BT, IBM, Deutsche Post/DHL and Air Liquide. Planned talks cover a variety of different application areas, with speakers from both industry and academia. To keep updated with forthcoming talks, follow the group on Eventbite here: EURO Working Group on Practice of OR Events[1] or register to become a member of the Forum[2]. Recordings of previous events are on the EURO Practitioners' Forum wordpress website[3].

The Practitioners' Forum is also working with Finnish and other colleagues to finalise the plans for practitioner activities at EURO2022 (3-6 July 2022 in Helsinki). Sessions include coding tutorials "Show don't tell; prove don't claim"; introduction to EU-funded model design suite "Spine"; discussions and panels on vital topics including the OR/Analytics sales pitch, practising ethically, collecting information from stakeholders, engaging with people post-Covid, and what makes for excellent OR practice; as well as the ever-popular "speed networking" and "lightning talks" sessions.

The conference will also include plenty more of interest to practitioners, including plenary speakers Marja-Liisa Siikonen from Kone Corporation talking about future trends in vertical transportation and Prof Christina Pagel giving an overview of the COVID-19 pandemic and reflection on the interconnectedness of systems; a wide variety of keynotes; and a window on some of the cutting-edge developments in OR/analytics research and software.
Find out more at Making an Impact – ESPOO EURO 2022[4] which will be regularly updated as the programme develops.

[1] bit.ly/3LC0R5o

[2] bit.ly/3iTYi1Z

[3] bit.ly/3uMwSAL

[4] bit.ly/3tWprI6

39th International Symposium on Military Operational Research (ISMOR)

Royal Holloway, University of London: 19-21 July 2022
Online: 20-21 July 2022

CALL FOR PAPERS

ISMOR is an annual international symposium sponsored by the UK Ministry of Defence. Following the necessary cancellation of 2020, and the virtual event in 2021, ISMOR will return to Royal Holloway, University of London in July 2022 to spend three days exploring the application of analysis to practical issues in defence and security with a wide range of colleagues from across the world. In addition, the conference will be open to virtual presenters and attendees on days two and three. The conference will offer a unique opportunity to:

- Network with defence professionals from across the globe
- Discover the latest defence analysis techniques and approaches
- Present your work to a respected audience

As well as inspiring experienced practitioners with new approaches and providing informal testing of ideas, ISMOR offers an excellent development opportunity for early career analysts.

Themes for 2022 will include:

Analysis in a changing world. Understanding how to deliver robust and resilient analyses in the face of a rapidly evolving environment, including such factors as novel threats and climate change.

The OR of value. Helping decision makers to recognize and select affordable options delivering value for money.

Multidisciplinary analysis. Harnessing multiple techniques and disciplines to provide a more robust evidence base for decision making.

Submit your abstract NOW for a presentation or poster on any aspect of the application of analysis to defence and security, particularly those relating to the above symposium themes.

Who should come to ISMOR?

- Customers, practitioners and researchers from
- Government departments
- The Armed Forces
- Industry
- Academia

To submit your abstract, please email it to **enquiries@ismor.com**.

Registration is through the link on the ISMOR website.

This year's hybrid format means there is a revised pricing structure in place, but the team have worked to ensure that the cost to delegates is kept to a minimum, and that options for attendance are as flexible as possible.

KEY DATES

Deadline for early bird registration: 29 April 2022
Deadline for abstracts: 31 May 2022
Deadline for bookings: 16 June 2022

Special Interest Groups and Regional Societies

Upcoming events

Women in OR & Analytics Network

Date: 28 April 2022

Time: 13.30-14.30

Women making a difference with OR and analytics – Lightning Talks.

Be inspired and stimulated by our six lightning talk presenters, who will be showcasing just some of the ways that women are making a difference with OR and analytics, and take the opportunity to discuss and explore further.

For further details and to register, visit www.theorsociety.com/woran

OR & Strategy

Date: 5 May 2022

Time: 11.30-13.30

Supporting Strategy: Frameworks, Methods and Models.

This year is the 15th anniversary of the publication of the book "Supporting Strategy: Frameworks, Methods and Models. Join us in this inaugural workshop to share your ideas for new chapters or updates to the original chapters. We aim to develop the book through a series of workshops in-person and online to discuss ideas in order to shape the content of the chapters.

Find out more at: www.theorsociety.com/orandstrategy

Problem Structuring Methods

Date: 6 May 2022

Time: 16.00-17.00

Online Facilitated workshops during COVID: Our experience.

This talk provides an overview of our experience of participative problem structuring in the synchronous online workshop environment. We discuss our experience as facilitators in working with organisations involving key workers in the online environment. Based on our experience we offer guidance to those interested in transitioning to online facilitation.

Visit www.theorsociety.com/psm to find out more.

OR in the Third Sector

Date: 10 May 2022

Time: 14.00-15.00

How organisations get better with data.

The webinar will explain: the theoretical model behind the data maturity framework; the theory of change (and evidence to date) on how organisations get better; share some examples of different approaches to using the assessment tool (including by other partners and data support providers); and reflect on what the data says about the state of data maturity in the not-for-profit sector.

For further details, visit www.theorsociety.com/orinthethirdsector

WORAN and People Analytics

Date: 19 May 2022

Time: 13.30-14.30

Save the date for 'The Gender Pay Gap'.

Details will be published on www.theorsociety.com/WORAN in due course.

Problem Structuring Methods

Date: 7 June 2022

Time: 17.00-18.00

Save the date for an event with Jim Scholes.

Details will be published on www.theorsociety.com/PSM in due course.

Check out all our Regional Societies and Special Interest Groups at www.theorsociety.com/groups

Equality and inclusion

Everyday -isms – an issue for us all?

RUTH KAUFMAN OBE FORS

What is a micro-aggression? Do micro-aggressions matter? How do we recognise and experience discrimination on a grander scale? And what should we do about it?

These sorts of questions are relevant to every form of discrimination. At March's WORAN meeting we explored them in relation to "Challenging Everyday Sexism at Work", inspired by the #BreakTheBias theme of 2022's International Women's Day earlier in the month. The session was led by Debbie Rotchell from the Employers' Network for Equality & Inclusion.

Debbie aimed to raise awareness of the impact of 'casual sexism' on individuals and the organisation; and to help us identify areas at work where casual sexism happens and understand how we can challenge it. You can view her presentation on YouTube; links will be available from **www.theorsociety.com/WORAN**.

However, you can't view the breakout rooms where we discussed these issues under strict 'safe space' protocols. Instead, here is a highly redacted version of some discussion points:

- There are some OR workplaces where casual sexism is genuinely no longer seen as an issue. This is inspiring for the rest of us: it shows what can be done when there is a will to do it.
- BUT: there are still OR workplaces where senior people feel it is acceptable to express sexist views explicitly.
- Micro-aggressions are exactly that – micro – which can make them difficult to pin down. There is also micro-behaviour which has no aggressive intent behind it, but is still experienced as dismissive or demeaning or excluding. Such behaviours may well come from people we want to stay friendly with, either because we like them or because we need to work well with them.
- Some issues arise only when things change, e.g. caring responsibilities affecting availability for meetings. A workplace that adjusts to this when asked is better than one that doesn't; but a workplace that sees this adjustment as a favour to the individual has only gone halfway to being an effective work environment.
- Well-intentioned actions aimed at female inclusion and promotion can end up just adding extra workload unless the practical implications are worked through. Adjustments that don't work are, essentially, window-dressing.

Over a long career I have experienced outright sexism, casual sexism, and also ally-ship and support – all from both men and women. If only I had come across some of the conclusions sooner: that it is not about whether this is an issue for me personally, but about setting accepted good practice; don't ignore things that have upset you, but discuss; defaulting to humour risks confusing and undermining the argument; there are plenty of examples 'out there' of ways of challenging, both for oneself and on behalf of others, so there is no need to reinvent the wheel; and, most liberating, we do not have to respond in the moment, but can follow up when we have had time to reflect.

And what is true for sexism is true for all other types of excluding and discriminatory behaviour. Why not watch the video, and reflect on whether and how you may play your part? OR

Working in People Analytics

Application of People Analytics in smaller organisations

On 10 March 2022, the People Analytics SIG welcomed Ashwini Uthrapathi Shalila (Senior Manager People Analytics, PVH Corp) to their meeting to talk about her experiences of working in people analytics, focusing on how people analytics teams can be set up in smaller organisations.

Ashwini started by talking about what constitutes analytics in HR (human resources), explaining her view of the differences between:

- HR analytics (helping HR functions to optimise the performance of HR)
- Workforce analytics (analysing group dynamics, organisational effectiveness, productivity, and costs)
- People analytics (helping managers to understand talent development, and behavioural aspects of their workforce)

Ashwini then covered what it was like to set up an HR analytics function in a small organisation, describing how it can feel like being "first on the moon" and that the role requires setting the foundations for the function, understanding the data and definitions, and understanding legacy systems to leverage existing knowledge and goodwill.

She talked about the importance of finding the "pollinators" – the influential people who are either data savvy or data curious and can help you engage with your stakeholders and act as a translator for the business need.

Many of the tips and suggestions Ashwini shared for working in HR analytics in small organisations are equally relevant for larger organisations and for any type of analysis and modelling:

- Remembering to ask 'why?', not just to focus on the 'how' and 'what' of an analytical request – communicate with your stakeholders to understand their needs
- Learning to say no and to use the 'why' to help prioritise work
- Collaboration may not seem efficient in small teams, but it pays off in the longer term
- Enable stakeholders to help themselves to information and insight so you can move on to more advance modelling and analysis

The slides from the talk are on the People Analytics SIG pages of The OR Society's website:
www.theorsociety.com/people-analytics

Our next events will be a joint event with WORAN on 19 May 2022, and a webinar on the theme of Wellbeing in June or July. Look out for links to sign up for those.

Where a Masters in Business Analytics can lead

NIGEL CUMMINGS

Valorie Hampton started her career working in supply chain, within the automotive industry, at Toyota. She recognised that her work involved dealing with a lot of data but she felt she was not getting as much out of that data as was possible. She looked at various courses and decided a course in business analytics might be the answer.

The STEM-designated master's in analytics program at American University's Kogod School of Business caught Valorie's attention, as it was a master's degree that offered both full-time and part-time study options. She chose the part-time format, which involved her studying remotely for two years, so that she could fit the degree around her work at Toyota.

Although the course is mainly online, the students are required to visit the campus from time to time to work on group projects and to participate in networking events. Many such Master's schemes are run around the world, so there are opportunities for people everywhere to get a Masters in analytics.

Valorie's masters course provided a blending of management and leadership with data and analytics roles. Her course provided business fundamentals like consulting, finance, and business intelligence, but it also equipped her with specialist technical skills in a variety of programming languages such as R, Python, SQL, and the data visualisation program Tableau.

She learnt to specialise in areas like IT consulting, forensic accounting, and biostatistics. Her particular course also allowed for the participation in an in-person capstone project that saw teams of people working with (in this instance) a Washington, D.C. based company to solve a data-based problem.

In such condition's students might be called upon to work, for example, with professional sports teams to assess play evaluations or on software process analytics with software development firms. Valorie worked with the Special Olympics to predict BMI using data collected from worldwide events. This, she described, as a great experience – to be part of a team to determine which variables were and were not of value.

After graduating, Valorie wanted to join a data-driven role with a company whose products she regularly used. Those products happened to be largely from Microsoft. It was in the interview stage with Microsoft that she discovered the true value of her Master's in analytics degree.

"When recruiters see that you have that analytics background and you've invested time and money in a master's degree, the conversations becomes a whole lot easier", said Valorie. Having passed the interview, Valorie now works as a senior program manager for the Azure database platform at Microsoft, in Seattle. In her current role, Valorie assesses how customers use Microsoft's cloud products and provides insights to upper management about how to grow the products.

More at: **bit.ly/3u6LsTj**

The OR Society's Masters Scholarship

LEIGH MAIN

Each year, The OR Society awards a scholarship of up to £10,000 to assist promising students with the continuance of their studies in operational research and related disciplines. Leigh Main was awarded the scholarship in 2021 and is part-way through an MSc:

I am currently two thirds of the way through my second semester at the University of Southampton and I am very much enjoying the course! It is a very challenging masters and is pushing me to work extremely hard. I studied four modules in semester 1 and I had eight modules throughout semester 2 to complete coursework and exams for. The modules were mostly four to six weeks long in semester 2, with later deadlines to enable us to balance the larger workload.

I have completed modules that are both operational research and statistics-based, and I am particularly enjoying building on modules I chose in my undergraduate degree, such as nonlinear optimisation. The skills I learnt in my BSc and am currently learning in my MSc are being brought into new areas of learning and new programming languages, such as R and Python.

With the way my course is structured, I do not find out what type of project (internal or industry based) I will be working on over the summer until late May. However, I am looking into conducting my project with an external company or, if unsuccessful, writing a 15,000-word internal dissertation, focusing on scheduling and optimisation using heuristics.

I am very pleased to have secured a graduate scheme with Rockborne, which I start in November. The graduate scheme is for data engineering and consultancy, and it runs for two years and four months, the first four months of which will include training and preparing to be outsourced to a client to continue the scheme. I can be with up to four clients for the remaining two years, with a change every six months. This will be decided during each placement. Some of the topics I will be learning about during my training are statistical modelling, how to use different programs to analyse/clean data, business insights, communications and consultancy.

I currently have around four to five months left of my MSc, and I am very excited to see what my graduate job will be like and how it will prepare me for future employment.

Journal of Simulation (JOS): Call for Editor

GAVIN BLACKETT, EXECUTIVE DIRECTOR

The OR Society invites interested parties to submit their CVs for consideration to join the Society's *Journal of Simulation* editorial team (JOS).

The *Journal of Simulation* was founded in 2006 and publishes articles and technical notes from researchers and practitioners active in simulation. JOS encourages papers that span the breadth of the simulation process, including both modelling and analysis methodologies, and practical papers from a wide range of simulation applications in domains including manufacturing, service, defence, health care, and general commerce. JOS will particularly seek topics that are not "mainstream" in nature but interesting and evocative to the simulation community.

The journal is currently co-edited by Christine Currie (University of Southampton, UK), John Fowler (Arizona State University, USA), Navonil Mustafee (University of Exeter, UK) and, until recently, Loo Hay Lee (National University of Singapore, Singapore) who sadly died in March 2022. The journal's editorial team has over thirty-five associate editors in place.

Full information on the journal can be found at: **orsociety.tandfonline.com/journals/tjsm20**

John Fowler has now completed two terms as editor and will be stepping down at the end of the year. We are now seeking to appoint new editors to start in 2022 to allow for a handover period.

The selected editors will be expected to have worked in the field of simulation, be able to embrace both the theoretical and practical aspects of simulation research, be able to demonstrate a clear understanding of the journal's aims and have constructive ideas on its future development to meet the challenges and needs of the subject and the Society.

The appointment is for an initial period of five years, potentially renewable beyond that. There are plans for a transitional period that includes coordination with the departing editor. An honorarium is paid to each editor.

Articles are submitted to and managed through ScholarOne.

Please send your CV with a covering letter to Gavin Blackett, Executive Director, at **gavin.blackett@theorsociety.com**. The deadline for expressions of interest is **30 June 2022**.

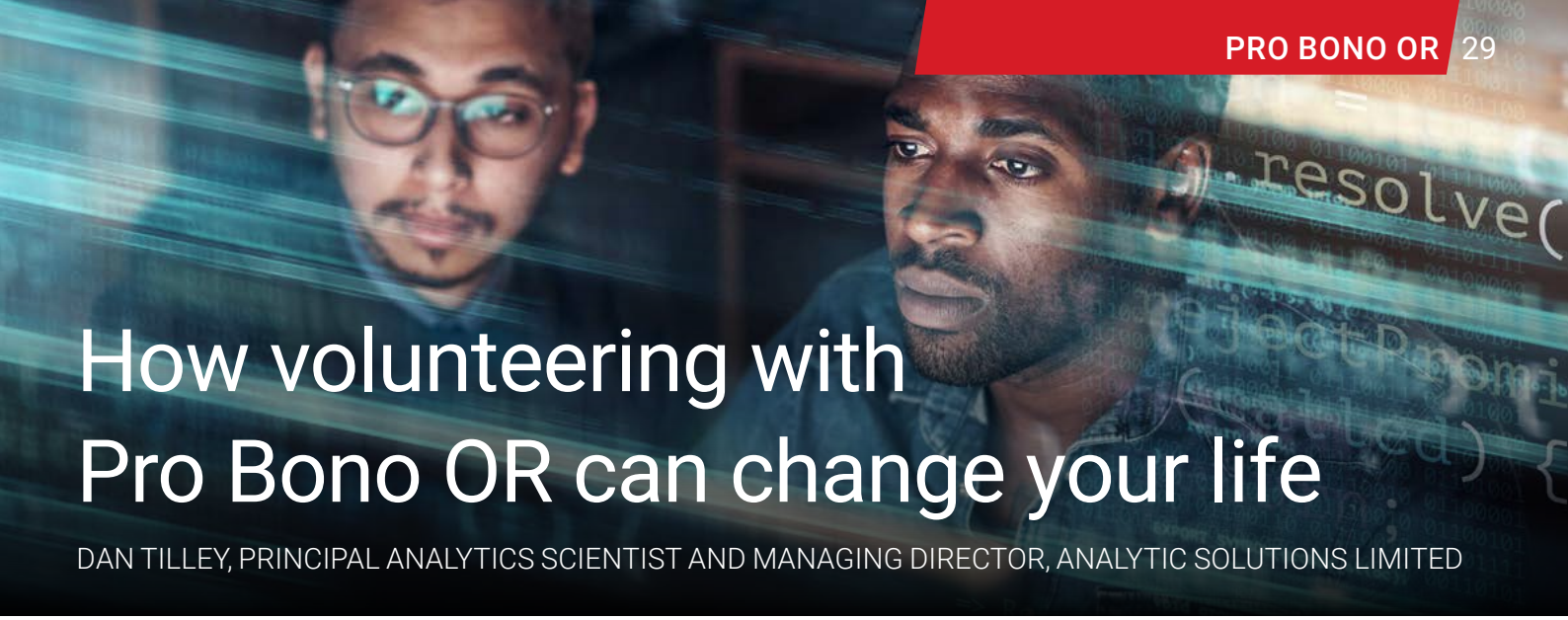
Call for Editor for The OR Society Journal *Health Systems* (HS)

As advertised on page 28 of the last edition of *Inside OR*, the Call for an Editor for *Health Systems* is still open.

This journal promotes the idea that all aspects of health and healthcare delivery can be viewed from a systems perspective, meaning that health and healthcare systems are characterised by complexity and interconnectedness.

The appointment is an initial period of five years, potentially renewable beyond that. An honorarium is paid to the editor.

Please send your two-page motivation letter and a CV to Gavin Blackett, Executive Director at **gavin.blackett@theorsociety.com**. The deadline for expressions of interest is **30 June 2022**.



How volunteering with Pro Bono OR can change your life

DAN TILLEY, PRINCIPAL ANALYTICS SCIENTIST AND MANAGING DIRECTOR, ANALYTIC SOLUTIONS LIMITED

Let me tell you a story about the power of networking and how my life was changed by volunteering through The OR Society's Pro Bono OR scheme to support a Community Interest Company, BuddyHub.

When I first started work in 2000 at Dstl I met a number of independent [defence] consultants. I was in awe of them, they had knowledge and skills I felt I would never have, though I dreamed of the possibilities.

Many years later I found myself working at a startup in London and I was not happy. The two-and-a-half hour commute each way was not fun and this spilled into the enjoyment of my work. It is important to me that I enjoy and get variety in my work.

I saw an advert from The OR Society looking for pro bono support for BuddyHub, an organisation trying to alleviate loneliness. This role appealed to me because my father had been diagnosed with Lewy Body Syndrome, a form of dementia. He had been moved into a care home and was already feeling very isolated and lonely.

I applied and was accepted, to my delight, to work on the project along with another individual to develop BuddyHub's:

- process for matching members; captured through a series of workshops and step tables;
- algorithm to match members;
- capability to choose the most cost-effective software;
- code to calculate travel times;
- key performance indicators using a driver tree and balanced scorecard.

My working with BuddyHub [1] was very rewarding I met some new people working in an exciting field trying to change the world, and I got to research new areas and develop new analytical skills. However, that is not where my story ended.

Working with BuddyHub gave me the confidence to set up my own independent consultancy (January 2020) and suddenly I was just like all those independent consultants I met in the early 2000s.

I continued to work with BuddyHub becoming their Principle Analytical Scientist (advising them on cyber security and data protection).

Inspired by my work with BuddyHub, and concerns over the pluses and minuses of smart technology to alleviate loneliness, I worked with a group of academics to develop a project [2] looking at digital harms in the interaction between home IoT, smart meters, and Demand-Side Management (DSM) technologies. I remain a part of the team and am very proud that this project was in part inspired by my working with BuddyHub.

I introduced BuddyHub to Karrie Liu. Karrie is a dedicated healthcare analytical consultant who was voted one of the top 100 women in tech [3], through Karrie's work BuddyHub continues to develop.

BuddyHub also provided a nice recommendation for my LinkedIn page and recommended me to GiveClarity.Org, who are specialists in fundraising for charitable organisations, to advise on cyber security and machine learning requirements.

All of this came from me helping support BuddyHub through The OR Society's Pro Bono OR scheme. I believe pro bono work could help your confidence, allow you to practice new skills, meet new and interesting people, and may lead to you fulfilling your dreams.

Find out more at: **www.theorsociety.com/ProBonoOR**

[1] www.theorsociety.com/get-involved/pro-bono-or/case-studies/data-collection-and-analysis/

[2] bit.ly/3DQWqkI

[3] wearetechwomen.com/karrie-liu-boehringer-ingelheim-ltd/

Upcoming courses

The OR Society provides a world-class training programme in OR and related disciplines

Delivering OR for practitioners
09-10 May (09.00-13.00) – Online
This course will follows on from "Essential OR skills for practitioners" and further develop the knowledge and skills required to select the best approach for analysing the solution to problems.

Foundations of OR: OR and the OR Process
09-10 May (09.00-13.00) – Online
This course will develop your understanding OR and its processes and how they are used to address real world problems. It will help to prepare students for the modelling issues they will encounter.

The Science of Data Visualisation
10 May (09.00-17.00) – Online
With data now considered assets learn competency in reproducible and consistent data wrangling and become a better influencer of complex models, ideas and solutions.

Foundations of OR: Problem Structuring Methods
11 May (09.00-16.00) – Online
The Problem Structuring Methods (PSMs) course gives delegates an introduction to Soft OR. PSMs are suitable for working with strategic and complex problem situations and structuring qualitative data.
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Reproducible data reports with R
11-12 May (08.00-13.00) – Online
This course will teach you how to update your reports at the click of a button using integrated R Markdown so your data reporting will efficient and reproducible.

Art of Data Visualisation
12 May (09.00-17.00) – Online
Learn six simple steps in the visualisation cycle and why some visuals are more pleasing to the eye than others and how this can be incorporated into your data results.

Foundations of OR: Simulation
16 May (09.00-17.00) – Online
This is an introduction to simulation modelling and will provide you with a good understanding of its potential applications in a variety of contexts. It offers both practical and theoretical content.

Overcoming challenges in OR deployment with the Public Sector Scorecard
16-17 May (09.00-13.00) – Online
Using case studies and Public Sector Scorecard (PSS), you will create an integrated strategy map, service improvement plan and performance measurement framework of your OR projects.

Data Science for Operational Researchers Using R
17-18 May (09.00-13.00) – Online
Improve your personal productivity for generating rapid and insightful results from large data sets. Learn about the role of R in the overall data science life process whilst appreciating the power of R.

Introduction to Prescriptive Analytics: Models and Applications
20 May (09.00-16.00) – Online
This course will teach you how to use advanced analytics techniques to solve complex optimisation problems so you can provide recommendations for the best solution or action from a number of possibilities.

Microsoft Excel: VBA Automation
23-24 May (13.30-17.30) – Online
This course will provide delegates with the skills to utilise VBA (Visual Basic for Applications) and achieve the efficiency in Excel modelling necessary for professional analytics practice.

Data Visualisation with Tableau
24 May (09.00-17.00) – Online
This course will provide OR practioners with the competency to navigate the various legal frameworks regarding data protection while becoming fluent in the language of data for effective communications.

Spatial Data Analysis & Visualisation in R
25-26 May (08.00-13.00) – Online
As spatial data sets grow ever larger this course will teach you how to harness the capabilities of R for your analysis.

Geospatial Data Visualisation with Tableau
26 May (09.00-17.00) – Online
This course will aid your understanding of how visual analysis improves the speed and accuracy of decision-making and how to integrate geospatial data into your analysis.

Influential analysis
31 May (09.00-17.00) – Online
Developed in response to the new age of data-centric activities and with data visualisation at its core method you'll learn how to get your message across and leverage your data assets.

ARE YOU AN EXPERT TRAINER WITHIN AN OR DISCIPLINE?

As advertised in the previous edition of *Inside OR*, The OR Society's Training Working Group (TWG) invites you to bid to provide training courses in 2023. The deadline for bids is **31 May 2022**. To request more information on how to submit a bid, contact **Jennie Phelps** at **jennie.phelps@theorsociety.com**.

Total Membership: 3681

New Accreditations

The OR Society is pleased to announce that the Accreditation Panel has admitted the following members to the categories shown. These members are now entitled to use post-nominal letters as indicated:

Admit to the category of Candidate of The OR Society (CandORS)

Jamie Addison
Jack Briston
Scott Carey
Catherine Gisborne
Shravan Khunti
Yuanyuan Li
Sai Ranjan Ravishankar
Mikey Rogers
Melanie Rovery
Sam Sandham
Darshan Upadhyay

Admit to the category of Fellow of The OR Society (FORS)

Sarah Knight

STOP PRESS: EVENT

Title: Diversity in OR/Analytics

When: 7 June 12:30-13:30

Where: Online

Our aim is to bring together academics and professionals working in OR/Analytics with professionals experienced in tackling issues of diversity and inclusion in the workplace. Our panellists will share what diversity in OR/Analytics means to them and ideas on how we can improve practices to ensure all voices in OR/Analytics are valued. Audience participation in the discussion will be encouraged, and questions for the panel may be submitted prior to and during the event. Details on how to book will be available on the website soon.

Panellists:

Dr Alain Zemkoho – Associate Professor in Operational Research, University of Southampton

Bernadette Kisaalu – Principal Lawyer, BT Customer Experience Legal Team

Vidhyalakshmi Karthikeyan, PhD – Head of Data and Insights at YouView

Nadia Abouayoub – Lecturer/ Module Leader and experienced Strategist in innovation in Investment Banking

For more information visit: www.theorsociety.com/edievents

Analytics, OR and AI Summit 2022

5 July 2022

IET London and online

The Analytics, OR and AI Summit is a unique event that brings together experts from across government, industry, consultancy and academia.

Book your place on this one-day hybrid conference to learn how you can use big data, AI and analytics to improve organisational decision-making.

Morning talks

Join industry leaders for talks on analytics innovations and best practise, either in-person or from the comfort of your home. Network with peers and exhibitors, and reconnect with the UK's vibrant analytics community.

Afternoon workshops

Jump into our expert-led afternoon workshops to get hands-on with the nuts and bolts of data strategies and business improvement projects.

Booking now open!

www.theorsociety.com/AS22

In partnership with:

ROYAL STATISTICAL SOCIETY

ICAEW CHARTERED ACCOUNTANTS