

SUMMER NEWSLETTER

International Biometric Society – British and Irish Region

Welcome to the Summer 2021 issue of the newsletter of the British and Irish Region of the IBS.

Take a break, have a cup of tea and find out what's been happening in the BIR as we continue in our virtual environment

If you have any items or news you would like to share with the society in future newsletters or would like to contribute to next issue's member spotlight, please email kirsty.hassall@rothamsted.ac.uk

In This Issue

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- Secretary's Report
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- Meeting Reports

President's Corner, Daniel Farewell

This is my first newsletter contribution as President, in which I reflect briefly on how I ended up in this position! I hope to encourage anyone feeling baffled or intimidated by professional life, wondering if and how they can contribute.

My first encounter with the IBS was attending the 2008 International Biometric Conference in Dublin. It was, of course, totally overwhelming: witness the picture of yours truly looking shell-shocked in the background. I remember meeting some very kind people, and not a whole lot else.



The unveiling of a commemorative plaque to William Gosset at the 2008 IBC in Dublin. Photo credit: Peter Macdonald, https://www.flickr.com/photos/tibs_ibc/2757806074/in/photostream/

Upcoming Events

Inference from time-series gene expression data

Details to follow

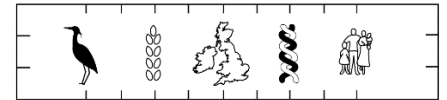
AGM and meeting

Details to follow

“Asking the question ‘What if David Finney had been Bayesian?’. Kerrie discussed how David Finney might have approached these ... topics from the Bayesian perspective.”

- Hear the full lecture at

<https://centreforstatistics.maths.ed.ac.uk/cfs/events/the-david-finney-lecture/5th-david-finney-lecture>



Regional News

Call for Nominations for BIR committee members

email Rachel McCrea at

R.S.McCrea@kent.ac.uk

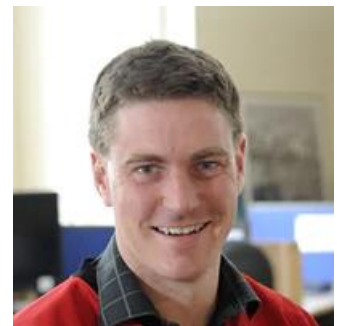
As with so many things in life, I became a member of the International Biometric Society because someone invited me -- James Carpenter asked if I would join the committee for the British & Irish Region. My first few committee meetings were confusing, and it took me a while to work out what we actually did: mainly, organise scientific meetings and support younger members through grants and awards. I was a little awed by the committee members, and this is my point: eventually I wasn't, and then was able to learn and contribute more meaningfully.

A highlight of my time on the BIR committee was helping to organise the 41st anniversary celebration of David Cox's "Regression models and life-tables" (1972). The meeting was truly excellent, though my chairing of the event was not: I introduced my PhD supervisor, Robin Henderson, as a "yes man" (I was meaning "like Jim Carrey in that movie, in a good way", but soon learned the phrase has another meaning), and closed the session by inviting the audience to please "spank our theakers". Again, my mistakes did not seem to preclude me continuing to help out.

I remained on the BIR committee via a stint on IBS's Representative Council, where I learned two important lessons. First, our international society is incredibly diverse, geographically and in every other way. Second, there are real, practical things we can do to support IBS regions with fewer resources. This includes submitting articles for the society's publications, whereby journal revenue can be channelled into IBS development activities.

Which brings me to today. Because you have done so at every point to date, I am confident that you will continue to bear with me as I find my feet in this role. My hope is that our society can continue to be a place to make mistakes (hopefully not too many!), learn together and in particular to support the development of all our younger members towards "senior" jobs such as this! After all, as the tagline to my favourite movie of all time (Dave) goes: "In a [society] where anybody can become President, anybody just did."

Welcome to our new President



Daniel is a Reader in Statistics at Cardiff University. He enjoys thinking about problems in longitudinal data analysis, causal inference, and missing data.

Secretary's Report, Rachel McCrea

I have to be honest that when I was writing my Secretary's report last spring I had not envisaged that a year later we would still primarily be working from home. However, the transition to online meetings and events has brought with it some added benefits, although I have to say I am really looking forward to meeting everyone in person again!

This last year has seen some very enjoyable meetings being run remotely by the BIR and it is pleasing to see the very large attendance numbers at the meeting due to the ease with which people can join when not having to travel. This is an important attraction of online meetings and going forward as a society we will need to think about what role virtual meetings have.

As always, it was very enjoyable receiving the nominations for the Young Biometrician Award, seeing such high quality work being completed by early career researchers and the esteem with which they are regarded by their nominators.

This will be my final year as Secretary for the BIR but I have thoroughly enjoyed the role and I look forward to attending future BIR events.

The Young Biometrician Award

The 2021 Young Biometrician Awards have been won by H el ene Ruffieux of the MRC Biostatistics Unit, Cambridge University, for her paper "A global-local approach for detecting hotspots in multiple-response regression" (*The Annals of Applied Statistics*, 2020), and by Richard Glennie of the Centre for Research into Ecological and Environmental Modelling at the University of St Andrews, for his paper "Open population maximum likelihood spatial capture-recapture" published in *Biometrics* (2019). This is the first time this award has been tied, and shared by two individuals.

The panel of judges felt Richard's paper represented a very considerable step forward for capture-recapture models in both theory and implementation. By reframing the spatial capture-recapture problem in terms of hidden Markov models, the paper offers important and novel insights into sources of variation and bias. The authors explained modelling and inference exceptionally clearly, and demonstrated the power of their approach in a fascinating and challenging analysis of jaguar abundance in Belize.

H el ene's paper offered a mathematically impressive, tractable analytic approximation to Bayesian inference in the difficult, high-dimensional problem of hotspot detection in statistical genetics, and demonstrated clear improvements over existing approaches. The work combines novel methodological contributions in both model specification and inference, and the judges expressed their admiration for the paper's combination of technical sophistication and practical utility.

Goodbye to our Secretary



Rachel has done an amazing job as Secretary of the BIR for the last 4 years, keeping things running just as they should. On behalf of the committee, we extend our immense thanks and gratitude.

The judges also gave an honourable mention to Théo Michelot of the Centre for Research into Ecological and Environmental Modelling, University of St Andrews, for his paper "Inference in MCMC step selection models" (Biometrics, 2019). Théo's paper offered an elegant analogy between habitat selection models and Markov chain Monte Carlo approaches, and an accomplished translation of this big idea into the details of zebra habitat modelling that provided new understanding to this field.

The judges this year were Andrew Mead (Rothamsted Research, representing the Fisher Memorial Trust), Daniel Farewell (Cardiff University, representing the British & Irish Region of the International Biometric Society), and Kerrie Mengersen (Queensland University of Technology, and this year's international judge). The judges were delighted with the high quality of all the entries received. The future of biometry remains very bright!

The 5th David Finney Lecture, Nicole Augustin

The annual meeting was co-organised by the Centre for Statistics within the University of Edinburgh, hosted by the International Centre for Mathematical Sciences (ICMS) and sponsored by the IBS-BIR.

The 5th Annual David Finney Lecture was given by Professor Kerrie Mengersen and entitled 'Crikey - it's a Bayesian!'. Kerrie Mengersen is Distinguished Professor in Statistics at Queensland University of Technology in Brisbane, Australia. Bayesian statistics is now an established tool of trade for an applied statistician or data scientist. However, there are many open challenges in Bayesian modelling and analysis, which are often inspired by challenging real-world problems. Kerrie Mengersen discussed a suite of environmental and biological problems that required the building of better Bayesian tools to address increasingly sophisticated insights. David Finney was one of the first to publish on experimental design, bioassay, drug safety, statistical computing and genetics. Asking the question 'What if David Finney had been Bayesian?'. Kerrie discussed how David Finney might have approached these five topics from the Bayesian perspective. She did this by presenting a range of statistical challenges from the Antarctic to the Amazon, and from water to wellness based on her work with many different collaborators. The tools included spatio-temporal models, nonparametrics, latent variable constructs and Bayesian network analyses. The talk ended with two quotes: 'I think that an appreciation of variability ought to be part of a general education' (Finney) and 'If we do one thing, and if we achieve one ambition, it will be to instil in everyone a knowledge of the power of data and how to wield it' (Mengersen).

The talk was given virtually and attracted audience of over 200 people watching live via Zoom followed by a lively discussion. A recording of the presentation is available at

<https://centreforstatistics.maths.ed.ac.uk/cfs/events/the-david-finney-lecture/5th-david-finney-lecture>



International News

IBC 2022 – Call for Contributed Oral & Poster Abstracts

<https://www.biometricsociety.org/meetings/conferences/ibc2022>

IBC 2022 to be held in Riga, Latvia

July 10-15, 2022

Radisson Blu Latvija
Conference & Spa Hotel,

Join the IBS Members Community

www.biometricsociety.org

Meeting and Workshop on Advanced Topics in Spatial Sampling, Kirsty Hassall

A series of events on the topic of advanced spatial sampling was held on the 24th March 2021. The day was split into two parts with the morning dedicated to a workshop on Spatial sampling: some principles and practicalities and was run by Professor Murray Lark and the afternoon dedicated to a series of three webinars by Professor Janine Illian, Dr Peter Henrys and Dr Eleni Matechou. Both events were run online using zoom and with great participation. We had a sell-out of 31 participants to the morning workshop and around 58 attendees to the free afternoon webinars.

The morning workshop focussed on three principles, sampling to estimate the mean, sampling to predict (i.e. to map) and sampling to investigate spatial variability. Murray took participants through these different approaches highlighting that very different sampling strategies are needed to address each objective. The course was highly interactive with the ability to follow examples in R and to work through practicals after each section. Participants asked questions throughout and showed great engagement. Attendees came from a broad geographical spread – a clear advantage of the virtual framework.

The first speaker of the afternoon was Janine Illian (University of Glasgow) whose talk was entitled Spatial modelling – a focus on sampling and observation processes. With some fantastic photographic props Janine introduced some of the key aspects that need to be considered in ecological modelling, and by association the sampling needed to obtain data. These include, the spatial scale, landscape features and domains, interactions between species and of course the practicalities of measurement. All of these introduce some constraints on the observation process which was introduced as an operation of the underlying point process to create a thinned point process. Janine went on to describe how the package `inlabru` allows users to implement such observation processes and use the underlying `inla` framework for inference. A number of examples were used to demonstrate this approach including predicting the re-establishment of cranes in the UK and modelling orang-utan conservation in Borneo.

Peter Henrys (Centre of Ecology and Hydrology) gave the second talk entitled Monitoring the status, trends and impacts on vegetation at national scales: current practices and designs for the future. Pete's talk focussed on the challenges of designing long-term monitoring studies due to the many different objectives from different stakeholders some of which are not even known at the start of the survey. Increasingly, multiple sources of data are available to tackle similar questions, and so the second half of the talk focussed on different methodologies for combining such data and the link with the observation model, a theme continued from the first talk. A critical warning was issued that in some cases, combining data has detrimental impacts on the estimation when correlation is present. The final part of the talk touched on adaptive designs and how these can

Balance and spread



Murray's workshop covered the ideas of Balance and Spread in designing spatial sampling schemes with covariates

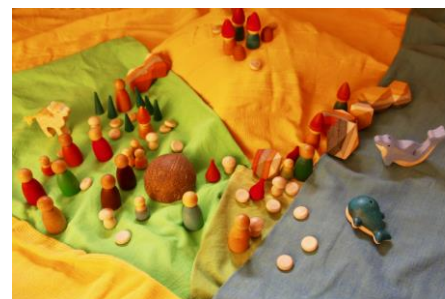
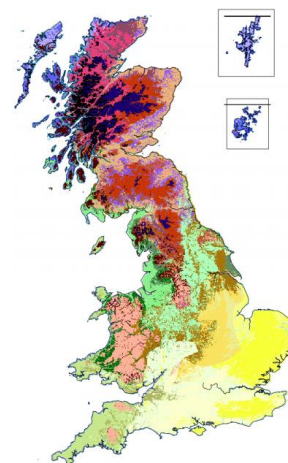


Photo taken from Janine's presentation covering the different aspects of ecological modelling



Pete's presentation included aspects of the long-term monitoring program, the countryside survey, conceived in the 1970s

help the general framework for national monitoring, but of course the issue of multiple or ill-defined objectives remain.

The final speaker of the afternoon was Eleni Matechou (University of Kent) with her talk, How to walk the BeeWalk: modelling bumblebee citizen science data. Eleni's talk introduced a citizen science project aimed at quantifying the abundance of bumble bee species throughout the UK. Interestingly, volunteers needed to be able to identify bees of different castes in order to construct a phenological model of the bee lifecycle. The resulting data were incredibly sparse limiting the ability to model things spatially due to quite complex observational processes. Despite this, Eleni showed how they have been successful in modelling the temporal dynamics of the bee lifecycle and how this varies year-to-year and in different species. The modelling is openly available on an R shiny app for users to explore. Discussions concentrated on how the spatial aspect could be incorporated generating new ideas for future research.

All speakers gave fantastic talks with good cross-links between the talks. There were questions after all talks which stimulated some good discussions and opportunities for new collaborations. All in all, a successful event.

Channel Network Conference, Anestis Touloumis

The 8th Channel Network Conference, a biennial conference organised jointly by the British-Irish, France, Belgium, and Netherlands IBS regions, was held from 7th to 9th of April. This year the French region was expected to host the conference in Paris but due to the global COVID-19 pandemic, the local organizing committee decided to offer a fully virtual conference.

The first day began with three short courses that run in parallel (Practical Deep Learning with R, Co-data Learning in High Dimensional Prediction Problems, and Non-parametric Bayesian Methods for Classification). The opening ceremony of the conference was held in the afternoon and Professor Jeanine Houwing-Duistermaat gave the first of the two keynote presentations illustrating how statistical science can benefit the integrated analysis of omics data. The keynote talk was followed by the first three contributed sessions which covered topics in survival analysis, high-dimensional and functional data analysis, and multivariate data analysis. The first day closed with very interesting poster session accompanied with a 5-minute lightning presentation per poster. The presentations were very impressive and the visualisations employed by the participants were outstanding. The poster presentation was awarded to Rebecca Marion. A highlight of the poster session was that four undergraduate students from Institut Agro - Agrocampus Ouest (Lea Pautrel, Rindra Ranaivomanana, Emma Rouault) received an honorable mention for their work.

There were two invited sessions on the second day of the conference; one in the morning on Data Integration and one in the afternoon on



The humble bumblebee featuring in Eleni's citizen science presentation



Infectious Diseases. As anticipated, the latter session was well-attended since the speakers talked about the statistical and how statistics informed decision-making in UK, France, and Belgium during the pandemic. Contributed sessions around the topics of Genomics, Causal-inference, Hypothesis Testing, Spatial and Environmental Modeling, Penalised Estimation Methods, Longitudinal Data Analysis, and Bayesian Methods generated several exciting talks for the rest of the second day.

The participants on the last day of the conference had the chance to attend the third and final invited session on Statistical Modeling in Movement Ecology and right after that, Professor Mathias Drton gave the second keynote lecture talking about Causal Discovery from Observational Data. The conference concluded with the closing ceremony at noon where the best student oral presentation and the best student prizes were awarded. The best student oral presentation award was given to Van Nee Mirrelijn. Presentations and posters will be available to download in due course – watch this space!

CNC Keynote speakers:



Jeanine Houwing-Duistermaat,
University of Leeds

Mathias Drton, Technical
University of Munich