INTERNATIONAL BIOMETRIC SOCIETY
BRITISH AND IRISH REGION

WINTER NEWSLETTER

International Biometric Society – British and Irish Region

Welcome to the Winter 2020 issue of the newsletter of the British and Irish Region of the IBS.

Warning - It's a bumper issue. Take a break, have a cup of tea and find out what's been happening in the BIR, from new committee members, scientific meetings and more of our member spotlights.

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

Upcoming Events

Workshop on statistical sampling for spatial estimation

Details to follow

Topics in advanced sampling for efficient monitoring

Details to follow

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"IBS […] was invaluable in allowing me to interact with other statistical ecologists, first through the Mathematical Ecology Group of the then British Region, and then internationally through International Biometric Conferences."

-Prof Stephen Buckland

President's Corner, Ruth King

As I have come to the end of my Presidency of the British and Irish Region (BIR) I would again like to say what a privilege it has been to serve as President of the region. I have been a member of the society for approximately 20 years and served in several different roles over these years and attended numerous IBS meetings and conferences. As a direct result of these activities I have met many individuals who I would not have otherwise come into contact with – and this in itself has been one of the aspects of the society I have enjoyed the most – particularly at the regional level. I would like to thank everyone who has engaged with the society, and particularly those who have served on the committee giving their time and commitment to the region, not least given the many other pressures on everyone. This year we can "boast" about our new website (if you have not seen it please do take a look! – see later article in this newsletter) and a range of highly successful and popular on-line meetings. As outgoing

President I am very much looking forward to what the future brings for the region and to continue engaging with the activities and members of the society.

In my final message, as for the last President's Corner, two issues continue to dominate my thoughts – that of (in)equality and the impact of COVID-19. Consequently, this year, in light of these issues, I have reflected a little about the scientific community and how science advances. With these issues strongly in mind, it is very important that we all learn, not only from our own experiences (and often mistakes), but also from the **experiences of others**, and build on these for the better. However, this is generally how science itself progresses, bringing together, and building on, knowledge and understanding of others. In our own research we have to first understand other researchers' work and point of view from which we can then build on with our own experiences, developing the ideas further or proposing alternative counter arguments and using information (i.e. data) to assess these.

We continue to push for a positive environment for all individuals and consequently the BIR have been active in making a clear statement against racism and discrimination on the new regional webpages, and will proactively push to ensure a representative society for the benefit of all. For COVID-19, the effects have been devastating in terms of the direct cost of human lives, but the impact unfortunately goes further with the more difficult to measure indirect lives lost and health costs as well as the huge economic shock and its associated impact. I know many members of the region have been involved in COVID-related research to help the scientific effort against the virus. And there is now some positive news regarding potential vaccines that have emerged in recent weeks – and I am sure that we are all monitoring these developments closely – and we will be looking to a better 2021.

And my final, final message – I would whole-heartedly welcome Daniel Farewell as the new President of the region – and look forward to continue working with him this next year!

Secretary's Report, Rachel McCrea

2020 has been a challenging year for us all but it has been inspiring to see so many research communities remotely "come together" to offer exciting and novel ways to share their current work. This has been evident within the BIR with three very popular remote meetings being held this Autumn (further details on these meetings are provided in other reports). Removing the need to physically travel to events has meant that wider participation has been possible and this positive impact is something we are actively discussing within the committee to see how we can build these types of events into our remit once life has returned to "normal". Plans are underway for a number of meetings next year and we look forward to sharing details of those with you soon.
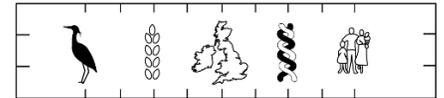
Regional News

AGM minutes to be made available at the new website

Call for nominations for the 2021 Young Biometrician Award

Closing date, 26 March 2021

https://www.biometricsociety.org/bir/resources/honors-awards

Welcome to new Committee Members

Christiana Kartsonaki is a Senior Statistician at the Clinical Trial Service Unit and Epidemiological Studies Unit (CTSU) in the Nuffield Department of Population Health, University of Oxford. She is working on the epidemiology of cancer and chronic diseases mainly using data from the China Kadoorie Biobank, as well as on related methods.

As I come to the end of my 2nd year as secretary of the BIR and enter my last year in this post it is an opportunity for me to reflect that members of the committee and members of the BIR society are always willing to help each other out. It has been fantastic to have responses from people putting themselves forward to join the committee and members of the committee stepping forward to take on officer roles. All of this enthusiasm has made my job a lot easier! Next year will be a Young Biometrician Award year so please do think about nominating your early career colleagues to celebrate their work. More details below.

AGM Summary, Ruth King

The IBS:AGM was held virtually on the 11th November starting at 11.30. A total of 19 members attended the meeting. The minutes of the meeting and associated reports will be made available on the IBS:BIR website in due course. In this brief report of the meeting, to avoid repetition of items that will appear elsewhere in this newsletter, we mainly report on the changes to the committee membership. The financial report showed a slightly more favourable financial position this year, primarily due to a combination of a share of the small profit from the Channel Network Meeting and the reduced outgoings this year due to the lack of physical meetings (and associated room costs and travel expenses) and lack of the usual bursaries to attend the IBC. The membership report also showed a fairly static picture this year regarding the membership of the BIR – but again it would be good to increase our membership and so please do encourage colleagues to join the society!

Notes of thanks were given to Lisa McFetridge, Ruth Keogh and Mark Brewer who are standing down from their responsibilities as Treasurer of the BIR, BIR committee member and member of the IBS Executive Board, respectively. The following individuals were unanimously voted for the following roles:

> Rachel McCrea (University of Kent) - Secretary
> Rhian Daniel (University of Cardiff) – Membership Secretary
> Anestis Touloumis (University of Brighton) – Treasurer
> Rafael de Andrade Moral (University of Maynooth) – committee member 2021-23
> David Hughes (University of Liverpool) – committee member 2021-23
> Christiana Kartsonaki (University of Oxford) – co-opted as committee member 2021 (to replace Anestis)

Other reports (see other items in this newsletter) included discussion of the equality, diversity and inclusivity (actions to date included a new statement added on the new webpage; and a standing item added to the committee meeting agenda); impact of COVID (immediately obvious by the AGM being virtual); details of the past meetings this year (virtual of course), future meetings planned for the spring; the launch of the new website; winners of the infographic competition; and advance notice of the Young Biometrician Award.

Welcome to new Committee Members

My name is Rafael, I am a Lecturer in Statistics at Maynooth University. I hold a BSc in Biology and an MSc and PhD in Statistics from University of São Paulo, Brazil. I really enjoy teaching and doing research related to the development and application of statistical modelling techniques to Biology and Agriculture, more specifically Ecology and Entomology. I am also interested in the computational implementation of statistical models, especially in R.

David Finney lecture, Belle Taylor

The IBS-BIR co-sponsored the 4th Annual David Finney Lecture given by Professor Sir David Spiegelhalter on "Communicating statistics, risk and uncertainty in the age of Covid" which took place on the 9th July, 2020. The talk presented a strong challenge to the claim that we live in a 'post-truth' society in which emotional responses dominate balanced consideration of evidence. The presentation focused on those who value quantitative and scientific evidence: How can we communicate statistics, risks and unavoidable scientific uncertainty in a transparent and trustworthy way? Prof. Spiegelhalter, who has been advising the UK government in its response to COVID, talked about the challenges of communicating during the epidemic and asked: Can we communicate deeper uncertainty about facts, numbers, or scientific hypotheses without losing trust and credibility?

The talk was given virtually after being rescheduled due to COVID and attracted an extremely engaged audience of over 900 people watching Live via Zoom and a Youtube livestream. A recording of the presentation is available at

https://media.ed.ac.uk/media/Communicating+statistics%2C+risk+and+uncertainty+in+the+age+of+Covid+-+Prof.+David+Spiegelhalter/1_y2lw3u6d

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.

Meeting reports - Advances in Survival Analysis, Mike Sweeting

The "Advances in Survival Analysis" meeting held on September 22nd was the first British and Irish Region (BIR) meeting to be held online and was a successful new foray for the regional society into webinars. With the ongoing coronavirus pandemic the region has decided to make all online meetings free to access for 2020 (and for the foreseeable future). With 219 registrations this meeting promised to be one of the largest regular meetings hosted by the BIR.

The first talk was given by Camille Maringe (of the London School of Hygiene and Tropical Medicine). Camille spoke on methods for measuring explained variation in excess hazard models. In the setting of multivariable modelling of excess hazards of death in a population-based cancer registry there are few tools available to check accuracy of predictions. Camille introduced the ranks explained metric as a measure of variation explained by a given model, and then extended this concept to the relative survival setting. Camille discussed an extension whereby the ranks explained contributions are weighted by the probability that the failure is of the cause of interest.

The second speaker was Francesca Gasperoni from the MRC Biostatistics Unit, University of Cambridge. Francesca presented a Semi-Markov multi-state model with a nonparametric discrete frailty as an approach to the identification of clustering. Her application was to a heart failure clinical administrative dataset from Lombardia, with

Welcome to new Committee Members

I'm David Hughes, a lecturer in Health Data Science at the University of Liverpool. I did a PhD in Statistics investigating monotonicity constraints for nonparametric regression. I then moved in Biostatistics and started looking at classification models using longitudinal data. For the last 3 years I've been completing a UKRI Innovation fellowship developing variational Bayes approximations for longitudinal models in large datasets.

My current research interests involve computational techniques for large observational datasets, with a particular focus on scalable Bayesian inference, through approximation techniques like variational Bayes.

follow-up of patients recording repeat hospital admissions, discharges and death as outcomes. The aim was to detect patterns of clustering structure among hospitals contributing data to the study. The developed methodology is implemented in the R package discfrail.

The final speaker of the session was Paul Lambert (of University of Leicester and Karolinska Institutet, Stockholm). Paul discussed the use of reference adjusted and standardised all-cause and crude probabilities as an alternative to the presentation of net survival in population-based cancer studies. Issues around the incorrect interpretation of net survival estimates in the media are common as survival estimates are in the hypothetical situation where it is not possible to die from causes other than the cancer. Paul showed how the use of reference adjusted and standardised all-cause and crude probabilities are easier to interpret yet still allow fair comparisons between populations. The methods developed are implemented in the Stata package standsurv.

Audience participation was good with a number of questions fielded following each talk. Overall, the meeting was deemed very successful.

Meeting reports - Advances in Statistical Genomics, Anestis Touloumis

The idea behind this scientific meeting was to present statistical advances in the field of genomics. The recent technological innovations in genomics have enabled researchers to obtain reliable data, increasing the statistical methodologies and computational techniques that are available to practitioners, statisticians, bioinformaticians, and biologists. Over 50 participants attended the three talks of the online (Zoom) meeting in October 2020.

The first of three talks came from Dr John Marioni, University of Cambridge & EMBL-EBI, who spoke about the use of computational models to understand the molecular mechanisms that underlie cell fate decisions in normal development and disease of mammals. He showed how to combine cutting-edge experimental approaches with novel computational approaches to generate a comprehensive map of how gene expression varies in space across an entire mouse embryo at the 8-12 somite stage of development. Unlike previous studies, the cell-specific spatial information was taken into account to identify whether specific cell-populations were located in the embryo, understand the signalling environment to which they were exposed, and how this might impact their molecular makeup and their ultimate fate. Finally, John provided an insight into current and future challenges with modelling spatially-resolved single-cell genomics data.

Dr Catalina Vallejos, MRC Human Genetics Unit at Edinburgh & The Alan Turing Institute, was our second speaker. Catalina introduced a hierarchical Bayesian model that results in a robust and biologically interpretable quantification of variability by taking into account the information across cells and genomics features. The proposed model can identify epigenetic heterogeneity drivers and perform differential methylation and variability analysis between pre-specified cell

John Marioni, presenting at the Advances in Statistical Genomics meeting

Catalina Vallejos, presenting at the Advances in Statistical Genomics meeting

Maria Secrier, presenting at the Advances in Statistical Genomics meeting

groups. Using real data, she illustrated how to characterize epigenetically distinct cell populations and how to enable the formulation of novel biological hypotheses on the epigenetic regulation of gene expression in early development.

The final talk was given by Dr Maria Secrier from the UCL Genetics Institute. Maria's talk was about mutational processes that contribute to the development of cancer, emerge from various risk factors of the disease, and impose specific imprints of somatic alterations in the genomes of cancer patients. She discussed her current research results about the development and progression of oesophageal adenocarcinoma by tracking mutational signatures in large cohorts of whole-genome sequenced human cancer tissues. Unlike existing approaches, her method exploits the observed genomic signatures and their specific temporal dynamics, allowing for early detection of this cancer. She finished her talk by showing some unpublished but promising results.

Overall, the three talks gave the audience an excellent insight into the current state of statistical genomics. Hopefully, the attendees left the meeting with new ideas and enthusiasm for applying the methods described to their research questions.

Meeting reports - Estimating Abundance and Beyond, Rachel McCrea

The meeting on "Estimating Abundance and Beyond" consisting of three talks, including the Presidential Address, was held virtually on November 11th, chaired by the Incoming President, Daniel Farewell, and was attended by over 100 individuals. Ruth King gave the Presidential Address on "Capture-recapture: The past, present and future". Within the talk Ruth presented a brief (and necessarily abridged) chronological history of the development of capture history that dates back to (at least) the 1600s up to the modern day; and highlighted particular foundational papers that were instrumental in developing the modern day statistical toolbox for analysing the now expanded set of forms of capture-recapture data. Motivational examples were provided spanning from Laplace to the recent day STEM advocate (and a personal childhood "legend" to many) Johnny Ball. The breadth of application areas from ecological conservation and management; to addressing modern social issues such as casualties in war, modern slaves and drug users were also presented, and laid the basis for the following two talks both motivated by the different application areas: epidemiology and ecology.

Antony Overstall (University of Southampton) presented the second talk, focusing on the use of capture-recapture techniques within epidemiological applications – often referred to as multiple systems estimation. These methods typically use a series of administrative data lists, cross-classified, to record the number of individuals observed by each distinct combination of sources. The aim is to estimate the number of individuals observed by any of the lists, in order to obtain an estimate of the total population. The standard models were described and a number of real case studies presented describing the practical challenges that often arise when applying the

8th Channel Network Conference, CNC 2021

7th - 9th April 2021

In 2021, the French region will host the biennial channel network conference

This will now take place virtually, with details to follow.

Deadline for abstract submission: 15th January 2021

Early Bird Registration: 10th March 2021

Registration Deadline: 25th March 2021

https://cnc21.sciencesconf.org/

Confirmed Keynote speakers:

Jeanine Houwing-Duistermaat, University of Leeds

Mathias Drton, Technical University of Munich

techniques which may include for example, differences in definitions of the population observed across the lists; inclusion of additional covariate information; and structural imperfect data collation across lists.

The final talk was presented by David Borchers (University of St Andrews) who described the use of modern technology to collect ecological capture-recapture data via the use of spatial arrays of camera traps. These data incorporate a new spatial element to the capture-recapture data, and are typically referred to as spatial capture-recapture. This has been a significant development with the ecological capture-recapture community and a number of the challenges associated with such data, and associated models were described. These include for example the incorporation of additional spatial environmental information that may influence the movement of individuals across the terrain (and hence camera traps); incorporating memory within the spatial observations over time and dealing with continuous time observations.

In addition to chairing the meeting Daniel also challenged each speaker to identify one thing that they wish people knew about Statistics. The thoughts of each speaker were interestingly all similarly aligned (though expressed in different ways) that Statistics is not all about collecting or collating data but, on the contrary, it is the opposite of this in that it is in the extraction of (often rather intricate and non-obvious) information from these data.

Infographic of the Year winners announced! - Daniel Farewell

We are pleased to announce the winners of the IBS-BIR Infographic of the Year competition. The deadline for entries was 31 October 2020, and the judges were impressed at the range of submissions, covering topics from crises to cancer, and from downturns to dogs!

The winner of the competition was Theo Pepler from the University of Glasgow, who submitted a witty- yet-informative variant of the now ubiquitous flattening-the-curve graphic. The runner-up was Kirsty Hassall from Rothamsted Research, who submitted a striking visualisation of the gender pay gap that persists across almost all professions. The judges thought is was entirely appropriate that 2020's winners highlighted Covid and inequalities, and would like to thank everyone who took part.

Theo wins a year's membership of the BIR, and Kirsty wins free registration at a BIR scientific meeting of her choice. Congratulations, Theo and Kirsty!

BIR launches new website - Daniel Farewell

We're delighted to officially announce the launch of the new BIR regional site. This marks the culmination of 18 months hard work by (especially) Peter Doherty and Kristina Wolford at the IBO, together with various members of the BIR committee.

8th Channel Network Conference, CNC 2021

7th - 9th April 2021

Invited Sessions:

- Integrating and analyzing data from different sources (Data Integration)
- Statistical modeling in movement ecology
- Infectious diseases

Short Courses:

- Practical deep learning with R
- Adaptive group regularization in prediction
- Non-parametric Bayesian methods for classification

Infographic of the Year
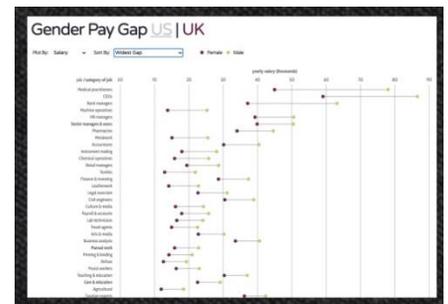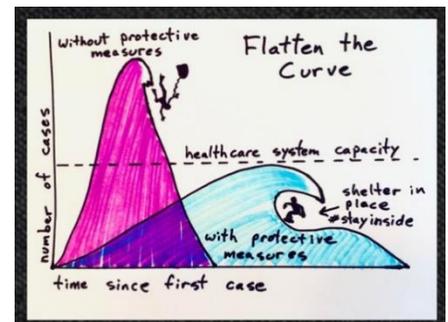
Our old site remains active at biometricsociety.org.uk, but early in 2021 this domain will begin to redirect to our new online home at bir.biometricsociety.org. We believe that all historical and scientific content has been migrated successfully to the new site, but we encourage you to log on to the old site if there is anything you would particularly miss once it is gone!

As ever, the new site will be the place to go for slides and content related to scientific events, minutes of committee meetings, newsletters, registration and subscription payments.The new site also offers exciting new possibilities, based as it is on HigherLogic's community infrastructure. The website will be more closely integrated with the wider IBS and will facilitate online discussion and debate among virtual communities, for instance following scientific meetings. This functionality now seems more important than ever!

More broadly, the project has also served as a testbed for other IBS regions wanting or needing a centrally managed and supported microsite.

It seems likely there will be further niggles to iron out following our launch, but we hope that ultimately our efforts will be of particular value to smaller regions who are looking to grow their online presence and coordinate regional activity.

Please do visit the new site at bir.biometricsociety.org and let us know what you think!

The Young Biometrician Award, Rachel McCrea

The British and Irish Region of the International Biometric Society, jointly with the Fisher Memorial Trust, award a prize every two years for young biometricians who are members of the BIR. Young biometricians are defined as those within 5 years of completing full-time education. The award recognises the research of one paper published, or accepted for publication, in a refereed journal. This award comprises a diploma and a prize of £1000. This is the fifth time the award will be made.

We are now making a call for nominations for the 2021 award, with 26 March 2021 as the closing date for nominations. The full rules of the competition, and previous winners, can be found on the BIR website: https://www.biometricsociety.org/bir/resources/honors-awards

To make a nomination, simply send a copy of the paper with a covering message, to the BIR Regional Secretary (R.S.McCrea@kent.ac.uk) before the closing date. Note that self-nominations are not allowed and, for co-authored papers, a full statement of the contribution from the young biometrician is also required.

Member Spotlight—Dr Li Su

I grew up in China and spent my undergraduate years at Renmin University of China in Beijing before moving to the states for graduate studies. In 2007 I received my PhD in Biostatistics from Brown University

IBC 2020 – sessions available on demand until 31st December

https://www.ibc2020.org/home

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

and joined the MRC Biostatistics Unit (BSU) in Cambridge as a postdoc. My role has been changed several times in the past decade and now I am a senior research associate at the BSU.

Maths has always been my favourite subject since my childhood. And I chose Biostatistics because I want to help people and do meaningful work. My methodological research focuses on analyses of complex longitudinal data from clinical trials and observational studies, including methods for handling missing data, selection bias and time-varying confounding. I have also worked on various projects in rheumatology, cardiovascular diseases, and recently, research on COVID-19.

I joined IBS in 2006, originally in ENAR and later in BIR. IBS is an active community which has made substantial contributions to biomedical research through the advances and applications of biometrical/biostatistical methods. I feel fortunate to be able to serve as an AE of Biometrics since 2015 and learn cutting-edge research of the IBS community. The meetings and conferences organised by the IBS-BIR also provide me opportunities to meet other researchers and share ideas/interests in solving real-life problems from biomedical research.
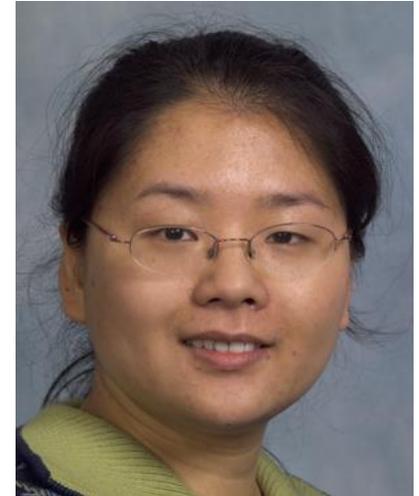
Member spotlight—Stephen Buckland

I grew up on a smallholding in Dorset. From an early age, I was fascinated by natural history, but I excelled at mathematics. I arrived at Southampton University in 1973, and soon discovered that I could combine my interest in natural history with my mathematics by specialising in statistics. After graduating, I took the MSc in Statistics at Edinburgh, followed by a lectureship in statistics at the age of 22 at Aberdeen. My MSc dissertation was on mark-recapture, my first exposure to statistical ecology, but it was the dissertation of a fellow student at Edinburgh, Richard Hayes, that influenced my future career more. He worked on line transect sampling, and after we had both graduated, we collaborated to publish his research. That led to invitations to attend meetings of the Scientific Committee of the International Whaling Commission, which was the major source of innovation in line transect methods in the 1980s. It also led to a job at the Inter-American Tropical Tuna Commission, where I worked on methods to estimate trends in dolphin populations of the eastern tropical Pacific, to assess the impact of tuna purse seine fisheries. On returning to the UK, I worked for SASS (now BioSS) for five years, before being offered the Chair in Statistics at St Andrews, as successor to Richard Cormack, who is best known for his ground-breaking work in mark-recapture.

IBS (then simply the Biometric Society) was invaluable in allowing me to interact with other statistical ecologists, first through the Mathematical Ecology Group of the then British Region, and then internationally through International Biometric Conferences. I am also grateful to IBS for giving me the opportunity to contribute to Biometrics as Associate Editor for many years, and later to edit JABES for three years.