CONGRATULATIONS

Congratulations to Rodolfo Gameros Leal (MASDOC PhD student) for his successful defense on 7 July 2017 of his PhD thesis "Mean traffic behaviour in Poissonian cities".

PhD Vivas recently passed:

- Sebastian Armstrong
- Francois—Xavier Briol
- Matthew Burgess
- Cyril Chimisov
- Matt Gilbert
- Pieralberto Guarniero
- Thomas Honnor
- Nick Tawn,
- Yufan Zhao
- Anyi Zou (MPhil)

European Study Group with Industry (by Martine Barons)

On 4th September, representatives of seven organisations assembled in MS0.2 with academics from across the mathematical sciences to begin an intensive week of research aimed at solving some real-world problems at the 130th European Study Group with Industry (ESGI130).

Initiated in Oxford in 1968, ESGI provides a forum for industrial scientists to work alongside academics from the mathematical sciences on problems of direct industrial relevance. They are an internationally recognised method of technology and knowledge transfer between academic mathematicians and industry, usually lasting one week.

The success of ESGI is demonstrated by the extent to which the unique format has been copied around the world, including Turing’s data study groups and Innovate UK’s Uncertainty Quantification and Management (UQ&M) study groups.

As more and more of the problems presented at ESGI become data-driven and probabilistic in nature, there is a growing need for robust and sophisticated statistics. ESGI130 was no exception; nearly all the problems involved data. We were able to select to work on one of seven problems presented on the first day: analysis of two-dimensional gas chromatography data; animal transcriptomic data; railway traffic management; droplet size from flat fan nozzles; measuring vibrations from video feeds; mitigating against marauding terrorists; and African drought risk pay-out benchmarking.

After two days of intensive work, we presented interim progress reports late on Wednesday afternoon, before the conference dinner. The purpose of this is to allow academics working on other problems to offer suggestions and insights. We finalised our work on Thursday and Friday presented our results. In the month following the study group, we wrote reports for the presenting organisations detailing the approaches taken and the results achieved.

Overall it was great fun to work on unfamiliar industrial problems with new people for the week, and if you have the opportunity, I heartily recommend it, especially if you are a PhD student wondering whether an industry career is for you or you are looking to develop more industry contacts.

The next UK ESGI will be July 16-20, 2018, UK, University of Bath, ESGi138

Contact J.Somma@bath.ac.uk
From Studying MMORSE at warwick to working for Developing Aid in Africa

(by Alex Jones)

I graduated from M.MORSE in 2004, and following some time travelling and working for NGOs in Asia, I joined the Civil Service Statistics Fast Stream. I worked at the Home Office on issues affecting race equality in the criminal justice system, as well as assessing policies to reduce violent crime. I then moved to the Department for Work and Pensions, working on legislation to automatically enrol all employees into a workplace pension scheme. In 2011 I joined the Department for International Development, working to define a set of results indicators to help the department aggregate achievements and communicate progress to the public. I have worked closely with the national statistical offices in countries including Afghanistan, Pakistan, Nepal, and Burma to help them increase their capacity to collect data which will help reduce poverty in their countries.

In 2014 I moved to Zimbabwe, where I now work on posting for DFID. I have responsibility for helping to ensure that the aid we spend in Zimbabwe has the maximum possible impact in reducing poverty. Here, we work in the Health, Education, Water, Agriculture, and Governance sectors. My work entails regularly interacting with Ministers in the UK. I also have responsibility for risk management – guiding our response to the turbulent economy here in Zimbabwe. The job can be stressful and full-on: when representing HMG overseas one is never truly “off duty”, but I love the variety, the ability to work on poverty reduction which I am passionate about, and the chance to experience living in Zimbabwe with my family is absolutely wonderful. The M.MORSE course was the best possible training for this work, and I appreciate more each day the fantastic education I received at Warwick.

Understanding All Human Beings From Convenience Samples

(by Kenneth Lim)  How important is it to specify a target population, i.e. the population one is interested in studying?

It seems important to me for several reasons. First, it helps formulate the research question of interest and clarifies, “who (in the case of social science) are we interested in understanding?” This helps determine the sample. Second, the results from inferential statistical analyses (e.g. hypothesis testing / estimation) provide information about the population of interest and not just the sample under investigation. However, the importance of a target population is rarely critically discussed in social science, where convenience samples of undergraduate students are the norm. On several occasions, I’ve asked social scientists what was their target population and gotten the response, “all human beings”. Apparently we can understand “all human beings” from convenience samples because “the theories are meant to be general” and “people share the same basic underlying mental processes”. Therefore, if you study several (convenience) samples and get broadly similar results supporting the theory, then the results are “robust” and apply to all human beings.

Several issues spring to mind. Should we consider “all human beings” ever, from the dawn to end of time? Does this also include newborns, those who cannot read, the critically ill, etc? Next, the process of studying several convenience samples to understand “all human beings” seems more like a mathematical proof of induction, e.g. if true in sample 1, sample k, then true in sample k + 1 (all human beings). Further, what population does a convenience sample belong to, and a theory may be general but doesn’t statistical inference require a defined population to generalise to?

Finally, there appears to be a disconnect between statisticians and parts of social science, which I cannot bridge. Consider two claims that appear to be the norm in parts of social science: “There is little variation across human populations”1 and “People share the same basic underlying mental processes”. Compare these with claims made in two different textbooks written by statisticians: “Statistics is largely about variability; in medical research this is often the variability between people”2, and “Human beings vary a lot!”3 If results are based on convenience samples, how much can we learn about “all human beings”? Whenever I hear or read appealing statements like, “People are “insert social science theory” …”, I cannot help but wonder, “which people”? But is this even an important question to ask?

References:


http://www2.warwick.ac.uk/fac/sci/statistics
Throughout my time as a PhD student I have found teaching to be a very rewarding side pursuit and I was very honoured to be commended in the 2017 WATE PGR awards.

Typically clad in cycling lycra, surely distressing to the students, my tutorials tended to have quite an informal atmosphere that I think was integral to inspiring participation and captivation. My teaching experiences have boosted my confidence and communicative skills when trying to explain complex ideas to an audience with diverse abilities. When I first started at Warwick I would find teaching to group sizes of 20 a little intimidating but for the past 2 years I have taken groups with up to 100 students in which I am setting my own material. This has been a challenge that I have really embraced and enjoyed thoroughly.

Beyond the obvious financial benefit, which in my case may as well have been given as store credit at Mike Vaughan Cycles, teaching has been an important motivation and productivity booster during my time as a PhD student. It seems unintuitive but having the extra commitment gave me both a handy break from research as well as a regularised structure to each week during the term-time periods. I think another nice benefit that teaching has is regarding the opportunity for short-term reward. Through a PhD short-term successes can be infrequent and I know that there can be periods that are less successful but little things like seeing that you've helped a whole class suddenly understand something for the first time or inspiring a shy student to participate gives me an immediate, boosting sense of achievement.

Big thanks to Ric Crossman, Jon Warren, Zorana Lazic and Elke Thonnes for their support in the process and all things teaching. Big thanks also to the support office staff for their invaluable help in sorting all my teaching related problems out. Finally, thanks to my supervisor Gareth Roberts for being so supportive of my teaching exploits.

I hope the students had as much fun as I did!

Exit poll for June 8th election: Another stunning success for statistical methods!

The election-day exit poll methods developed by Warwick Statistics professor David Firth surprised the world yet again at 10pm on election day, immediately after the polling stations closed.

The exit poll, commissioned jointly by broadcasters BBC, ITV and Sky, correctly predicted that the Conservatives would be the largest party in a hung parliament as the result of last Thursday's election. This was quite different from what had been expected by most politicians, commentators and the global financial markets — and a long way short of the increased majority that PM Theresa May had wanted when she called a snap election (three years earlier than scheduled).

Professor Firth said:

It's very pleasing that this continues to work so well — and especially pleasing that most people seem now to trust that the exit-poll prediction will usually be fairly accurate, regardless of the various pre-election opinion polls and punditry that might suggest otherwise.

For the full story and details of the methods used, see warwick.ac.uk/exitpolling.

Warwick Statistics Department has a new Alumni Linkedin Group. The purpose of the group is to share interesting ideas, news, opportunities of interest to those who have studied or worked in the department.

You can join the group by going to https://www.linkedin.com/groups/12073048.

For further information:

Contact: Charlie Cunningham, Senior Careers Consultant
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http://www2.warwick.ac.uk/fac/sci/statistics
The OR Society’s Annual Careers Open Day 2017

On Wednesday 15th November, Warwick Morse Society organised a trip to the annual OR Society’s Careers Open Day. 34 Warwick Statistics students travelled to Birmingham by coach to attend the event organised by The Operational Research Society. This trip was made possible due to the financial support of the Warwick Statistics department, The Operational Research Society, and Warwick Morse Society’s generous sponsors.

The day consisted of speaking to exhibitors from various fields (such as: Operational Research, Data Science, Data analytics, and Consulting), and listening to various interesting talks. My personal favourite was TUI’s talk on the subject of “The Operational Relevance of Net Promoter Score (NPS)” and furthermore having a discussion with a British Airways representative (who was also a Warwick MORSE graduate) about how they maximise revenue by targeting different consumer groups. For example, having extremely inflated prices in the week preceding the flight to target business travellers and having a sale after Christmas to target families who plan in advance and are looking for good deals. Some of the other exhibitors were:

- NATS
- Capgemini
- decisionLab
- Datatech Analytics
- Defence Science and Technology Laboratory (DSTL)
- Jaguar land Rover

Overall, the day was very beneficial to the students who attended because of the opportunity to speak directly with employees of these companies and to get a flavour of the sort of jobs available within this sector, and whether this would be an appealing career. Operational Research and data analytics jobs have a lower profile on campus compared to finance jobs for example, so it was a good opportunity to learn about different possible careers for Warwick Statistics graduates. I know some of the students who attended have since been invited to interviews with some of the companies present.

 RSS Conference

(by Huang Qi)

I attended 2017 RSS conference in September in Glasgow. It was held in the University of Strathclyde, with the venue right next to the city centre. It was my first time attending this conference, but not my first time in Glasgow; it is still a very impressive, clean and beautiful city. The RSS conference is an academic conference with a mix of keynote presentations and talks/workshops. The conference is organised by topics, including Data science, Medical statistics, Official statistics, Methods and Theory and many more. More than 500 participants from all over the world attend.

I presented my work, Hidden Markov Models (HMMs) for Monitoring Circadian Rhythm in Rest-Activity Data, in the application of statistics track. This work is motivated by the use of activity data for evaluating and monitoring the endogenous circadian rhythmicity of subjects for further research in chronobiology and chronotherapeutic healthcare. I showed that HMMs are an appropriate modelling approach which a) naturally captures the notable square wave form observed in activity data along with varied variances over the circadian cycle of human activity, (b) differentiates different activity patterns in a probabilistic way and (c) delivers interpretable parameter estimates, in particular probabilities of transitions between rest and activity that describe quality and quantity of sleep. In addition to me, some of our colleges, Matt and Martine, also attended this conference and presented their work to other international researchers.

In general, I gained much background knowledge at this conference. The RSS conference is the only one in the UK where anyone interested in data analysis and statistics can come together to share information and network. I was very happy to attend such an event and highly recommend people to go next year.