The New Zealand Statistical Association
Newsletter

Number 85 August 2020

Welcome

by Vanessa Cave

Had 2020 been an ordinary year, ANZSC2020, our conference with the Statistical Society of Australia, would already have been and gone. But 2020 is far from an ordinary year! Although ANZSC has been pushed back to July 5-9, 2021, this does not diminish the excitement that Jessica Kasza (the President of the Statistical Society of Australia) and I have for this event. We can't wait to see old friends and make new ones from around Australia and New Zealand in July 2021!

So why should you come along to the Gold Coast on July 5-9 2021 for ANZSC? Here are just a few reasons:

- Catch up on the latest in statistical theory and practice from our region,
- Hear from some leading statistical thinkers from around the world, including Professor Frauke Kreuter and Professor Iain Johnstone,
- Socialise with colleagues and enjoy delicious food at the conference dinner,
- See what the future of statistics has in store with presentations from our early career and student members.

I'm also very pleased and excited that our members will have a chance to meet up, socialize, and share statistical expertise & ideas at the NZSA UnConference NZSA UnConference (see page 4 of this newsletter). Many thanks to the University of Auckland, in particular James Curran, for creating this opportunity for us. The UnConference will include talks, social events, the presentation of NZSA Awards, and our AGM. I hope to see many of you there!

Ngā mihi,

Vanessa

Editorial

by MARIE FITCH

Kia ora koutou,

What a different year this has turned out to be to what I was expecting when writing my editorial for the previous newsletter, at the end of January. I don't know about you, but for me, January feels like a lifetime ago. So much has changed in the last six months.

I was fortunate to have moved into our new house 2 weeks prior to lock down. It certainly made my life more pleasant when working from home to be in a nice new house rather than cramped into a small flat!

It seems for most of us the past 6 months have centred around working from home and now adjusting to a new normal mix of working from home and the office. My thanks to those who have shared some reflections on lock down life for this newsletter. Thanks too to Richard Arnold and the Coronavirus Statistical Advisory Group for giving us an idea of the behind the scenes work they have been doing.

The next newsletter is planned for January 2021. Contributions are always welcome, let me know by the end of this year if you have something to contribute.

Ngā mihi,
Marie

Conferences

NZSA 2020 UnConference

The unfortunate events surrounding COVID-19 have meant that those NZSA members who were planning to attend our joint meeting with the SSA on the Gold Coast in July were unable to do so.

We thought it would be a shame if the Society did not have some opportunity to meet up. Therefore, to that end, James Curran has asked the NZSA President Vanessa Cave, and the NZSA Executive for permission to run a mini conference on **November 24th** and **November 25th** this year.

Permission to run the UnConference has been granted and preparations are now going ahead full-steam. Please note, this is going to be a slightly unconventional conference in a number of ways, including the fact that we are hoping to have NO REGISTRATION FEE. Our budgeting is for 100 attendees. If we are in serious danger of exceeding this number, we might have to consider a very nominal fee – basically to cover increased catering. We have been working on this over the last few weeks, and now have a website for you to register. Please do this sooner rather than later. We do ask you to treat this as a proper registration and not a registration of interest. Our budgeting depends on accurate information, hence this caution.

You can now register at: nzsa2020.nz

Stories of interest

Meet the NZSA Executive

Each newsletter some of the current NZSA executive introduce themselves. The brief they have been given is to provide a photograph and a paragraph answering some or all of the following three questions.
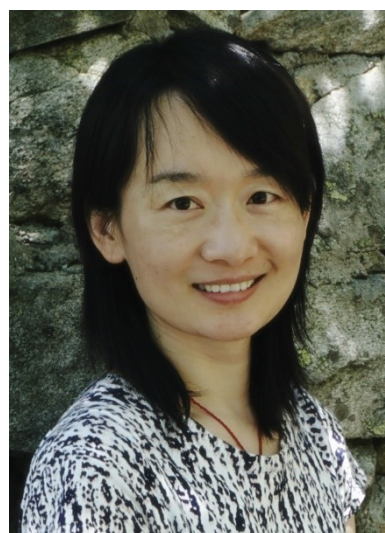
- What is your current role on the NZSA executive? How long have you been doing it? What (if any) other roles have you had?
- What is your job/connection to the NZ statistics community?
- What do you enjoy doing outside of work?

Ting Wang

I have been an NZSA Executive Committee Member since 2017. I was the NZSA representative in the working group looking for an alternative to ANZSTAT in 2018-2019.

I am a Senior Lecturer in the Department of Mathematics and Statistics and Associate Dean Research (Division of Sciences) at the University of Otago. I have been an Associate Editor for the Australian and New Zealand Journal of Statistics since 2017. The multidisciplinary applications of my research allow me to work with colleagues from different research fields.

I like traveling, hiking, calligraphy and reading detective books, but I haven't been able to do much of these since the arrival of my daughter. However, I've been enjoying sewing and knitting cute bags and garments for her.

The Prime Minister's 2019 Science Teacher Prize

Christchurch teacher Dr Michelle Dalrymple is the first mathematics and statistics teacher to win the Prime Minister's Science Teacher Prize.

Dr Dalrymple, Mathematics and Statistics Faculty Head at Cashmere High School, says every student deserves a champion and she is devoted to sharing her research and knowledge with other teachers around the country. She uses engaging and novel ways to connect her students and other teachers into mathematics and statistics, and says a fundamental part of her teaching is incorporating whanaungatanga, or teaching through relationships. Her nominator says her teaching stands out because it is strongly based on cutting-edge mathematics and statistics education research, while providing creative and fun strategies that are inspiring for her students.

Michelle is a very active member of the NZSA Education committee

You can read more about Michelle, her teaching and the Prime Minister's 2019 Science Teacher Prize here.

Coronavirus Statistical Advisory Group

by RICHARD ARNOLD

In late March, shortly after the beginning of the Alert Level 4 lockdown, a group of statisticians and epidemiologists convened an informal group to consider issues of sampling and testing for SARS-CoV-2. One of the stimuli for the creation of the group was a question from Dr Lucy Telfar-Barnard from the the Ministry of Health Public Health Strategy Team regarding the sample size required to conclude that the virus had been eliminated. It was clear to the group members that having clear answers to questions such as this would be of crucial importance in the creation of the evidence which would lead to movement between Alert Levels. From a small initial group we recruited a number of experts from around the country - the members of the group are listed below. Our early discussions concerned the feasibility of population prevalence testing in various forms, and the sensitivity and specificity of the nasopharyngeal swab test.

Following a statement of support from the President and immediate past President of the NZSA, and with support of National Science Advisor Professor Juliet Gerrard, we were recognised as a Statistical Advisory Group (SAG) by Director of Public Health Dr Caroline McElnay and Ministry of Health Chief Science Advisor Professor Ian Town. Our advice was sought by the Ministry for the programme of asymptomatic testing to be carried out by District Health Boards in the first week of May. This was immediately prior to the Cabinet meeting which was to determine whether to move from Alert Level 3 to Level 2. The DHBs needed specific advice on how to select samples of asymptomatic individuals from a set of populations identified as being at high risk. These groups included medical personnel, aged and residential care workers, migrant workers, supermarket workers, and international air crew.

Our advice was forwarded to the DHBs, who were responsible for determining their own priorities and methodologies for testing. Steve Haslett from the SAG made himself available for queries from the DHBs during the week of sampling, and a number were received. SAG member Thomas Lumley continued his regular blogging about statistical issues, and this included commentary on the interpretation of a sample of tests all of which are negative. Towards the end of May the SAG met with staff at ESR to discuss the setting up of a Biobank - a register of biological samples collected in the course of the COVID-19 pandemic. The SAG was asked to comment on the statistical and sampling issues that the biobank designers should consider. At this time the SAG also laid out in a letter to the Ministry of Health a set of concerns for short and medium term monitoring of the prevalence of SARS-CoV-2. This included cautions about the need for population surveys to be well designed in advance in case they need to be put into the field at short notice. In early June the Ministry of Health sought commentary on their draft Mid-Term National Testing Strategy for COVID-19. This advice concerned asymptomatic testing of at-risk groups in Alert Level 1.

SAG member Alistair Gray co-authored a paper with Len Cook, which has been published in the Statistical Journal of the International Association of Official Statistics. The paper "Official statistics in the search for solutions for living with COVID-19 and its consequences" provides a comprehensive account of statistical issues affecting official statistics agencies relevant to COVID-19. The SAG continues to meet intermittently.

Statistical Advisory Group Membership

Dr Dean Anderson (Wildlife and Ecology Management, Landcare Research)

Prof Richard Arnold (Victoria University of Wellington, School of Mathematics and Statistics)

Prof Barry Borman (Massey University, Centre for Public Health Research)

Prof Nigel French (Massey University, School of Veterinary Science)

Alistair Gray (Statistics Research Associates Ltd)

Prof Steve Haslett (Emeritus Professor, Massey University, School of Fundamental Sciences and Centre for Public Health Research)

Prof Thomas Lumley (University of Auckland, Department of Statistics)

Dr Matt Parry (University of Otago, Department of Mathematics and Statistics)

A/Prof Patricia Priest (University of Otago, Department of Preventive and Social Medicine)

A/Prof Deborah Read (Massey University, Centre for Public Health Research)

Dr Lucy Telfar-Barnard (University of Otago, Department of Public Health)

A/Prof Robin Turner (University of Otago, Biostatistics Unit)

References

- L. Cook and A. Gray, "Official statistics in the search for solutions for living with COVID-19 and its consequences" *Statistical Journal of the IAOS* 36 (2020) 253–278: DOI 10.3233/SJI-200671

Some of Thomas Lumley's blog posts:

- T. Lumley "Another reason why we don't know the COVID-19 mortality rate" see here
- T. Lumley "Counting rare things is hard" see here
- T. Lumley "What will COVID vaccine trials look like?" see here
- T. Lumley "Test accuracy" see here
- T. Lumley "COVID Treatments" see here

Updates

R Users Groups

by SHIRLEY WU

Owen Flanagan's talk in Auckland

Owen Flanagan presented a project on Twitter data earlier in the year. He talked about an end-to-end solution of collecting, storing, enriching and summarising tweets on a schedule using docker, a relational database and Shiny. Owen is a data scientist at Mott McDonald and enjoys working with R and the cloud to build interesting things.

Looking for presenters!

We are constantly looking for presenters for talks and interesting R or statistics related topics to share with the R community. Please contact your local R user group organisers if you are keen to present!

Photo courtesy of the Auckland R users group

* Auckland R users group meetup page
www.meetup.com/Auckland-R-Users-Group-AKLRUG/
* Wellington R users group meetup page
www.meetup.com/Wellington-R-Users-Group-WRUG/

News from the Statistics Education Teams

Statistics Education News

by MAXINE PFANNKUCH

NZ journal for statistics teachers
The Statistics & Data Science Educator (SDSE) continues to publish lesson plans from early childhood to tertiary levels. For example, **Marie Fitch**, has shared her introduction to Bayes' Theorem using the Pachinkogram from her Stage One probability course. Two other lessons for introductory undergraduate statistics will be published soon. **Maxine Pfannkuch** is managing editor with **Anna Fergusson** in the role of website and technical editor. Submissions are welcome to this peer reviewed online journal.

Stats Chat Blog (www.statschat.org.nz).
Subscribe to Stats Chat to find out **Thomas Lumley**'s interesting comments and musings on Covid-19 and other media statements. Stats Chat was launched by the Department of Statistics, Auckland University in 2011, and is continuing to have a good hit rate (about 280,000 page-views per year, the majority of the traffic being from NZ). There were a lot of hits on the Covid-19 stories this year, with one post getting 2000 hits. It was also reprinted in The Spinoff, "A big unknown of Covid-19 in NZ? The number of cases we have not detected". **David Scott**, the other main contributor to StatsChat, does the rugby predictions, which resulted in a bump in the hit rate last year during the Rugby World Cup.

2020 Conference Responses to Covid-19

Australian Conference on Teaching Statistics (OZCOTS) 9-10 July 2020, Gold Coast, Queensland, Australia. Because the conference was cancelled, people who were invited to submit a paper based on their abstract submissions (**Amy Renelle**, **Malia Puloka**, **Emma Lehrke**, **Marie Fitch**, University of Auckland) have been asked to submit their papers to a Special Issue of the journal Teaching Statistics. The theme for the conference is Statistics education in today's world.

International Association for Statistical Education (IASE) 2020 Roundtable Conference, Nanjing, China, 6-10 July 2020, took place as a virtual conference. There was an opening session (July 6) and a closing session (July 12) in real-time sessions. In the opening session, **Chris Wild** gave a live keynote at 11.00 AM (GMT+0) that was recorded and will be available online. Online discussions took place both in real time and asynchronously based on the topic groups (meaningful data, multivariate thinking, influence of data science, technology, changing nature of visualization and collaboration with other disciplines). **Stephanie Budgett** presented a paper and was a discussant for a session. **Pip Arnold** is the Proceedings Editor for the conference. See: https://iase-web.org/conference/roundtable20/

The 14th International Congress on Mathematical Education, Shanghai, China, will now take place 11-18 July 2021. IASE runs two special topic groups, one on statistics, the other probability. See: https://www.icme14.org/static/en/index.html

2021 Conferences

The 12th International Research Forum on Statistical Reasoning, Thinking and Literacy (SRTL-12) is in The Netherlands in July 2021 (3 to 9 July 2021). The theme of SRTL-12 is Re-thinking learners' reasoning with non-traditional data. It will be hosted by the University of Utrecht (see http://srtl.info).

International Association for Statistical Education (IASE) Satellite Conference, The Hague, The Netherlands, 16–18 July 2021. This conference will be held after the 61st ISI World Statistics Congress, 11-15 July 2021, The Hague, The Netherlands, in which there is an IASE sponsored session. Details for these conferences will be published soon on the IASE website (iase-web.org/Conferences.php?p=Upcoming).

NZSA Education Committee

by MIKE CAMDEN

Prime Minister's Science Teacher Prize goes to Michelle Dalrymple

We congratulate committee member Michelle on winning this year's Prime Minister's Science Teacher Prize. This is the first year that the award goes to a teacher of Mathematics and Statistics. It recognises Michelle's multiple contributions, and the centrality of the learning area. Michelle is faculty head at Cashmere High School, Christchurch.

The award ceremony from 30/6/20 is here. At about 16 minutes, Juliet Gerrard introduces the Teacher Prize, and announces Michelle as the winner. After that, Michelle makes some strong statements about the values and satisfactions for her in the teaching of Mathematics and Statistics.

Past winners are on the home page for the awards.

The Alert Levels have affected us

We've met twice since we talked to you last: once before and once during lockdown. The pandemic has affected us in several ways. Here are a few.

Members in lead teacher roles found that they had huge demands on their time, energy, and creativity, in getting distance learning up and running.

The Ministry of Education's Review of Achievement Standards (RAS) involves Subject Expert Groups (SEGs). We were very pleased that, by February, several of our committee members had been appointed across the two SEGs for Mathematics and Statistics. In March, the Ministry, understandably, put these SEGs on hold. We expect to hear plans for renewed work on RAS soon.

At the Ministry's suggestion, we put up a list of members who teachers could contact. It is on our web page.

We posted a list of links on the modelling and statistics of COVID-19: It is on the front page of CensusAtSchool, and under 'Enrichment and promotional', and in this folder.

Our counterparts in USA from the Joint ASA-NCTM statistics committee have prepared an enhanced version of their ground-breaking 2007 Pre-K-12 Guideline for Assessment and Instruction in Statistics Education (GAISE) Report. The Pre-K-12 GAISE II report is currently in production (publication was delayed due to COVID 19). Publication is expected in October 2020. The printed version will be available at Amazon and a free downloadable version will be available at www.amstat.org/education Our own **Pip Arnold** is one of the authors for the Pre-K-12 GAISE II report. The original Pre-K-12 GAISE can be downloaded: here.

Other developments carry on

Here they are.

NZQA is working on ways of assessing NCEA digitally. As a start on statistics, they are aiming to build digital statistics activities for Achievement Standard 91586, Apply probability distributions in solving problems, which is a Level 3 standard. They formed a small team of teachers which involves four of our members. The aim is to produce digital tools that enable students to explore sample and model probability distributions, and to report their findings. The activities for the digital statistics trial will be ready for teachers to trial with their students in term 3.

This NZQA team contains three of our members:

Michelle Dalrymple, Dave Phillips and Derek Smith. Also, Anna Fergusson has contributed a huge amount of work to the project. She has built a new tool which is part of the trials. She has produced support videos for teachers to help them find their way around the tool. Without this work, nothing would have been possible.

One of our central concerns is that policies, practices, and resources need to be soundly based in statistical education research. Anna's work is a fine example of this. The tool and an introductory video are here.

We have worked with NCEA to improve the Guidance documents for Achievement Standard 91582, Use statistical methods to make a formal inference, and related inference standards. The statements about sample and population will now be clearer for teachers.

Anna Fergusson has been collaborating with colleagues in the USA on a statistical investigation book, now published: *Focus on Statistics*. See here.

We are pleased to see that the Auckland Maths Association website now includes a YouTube presence: see here. You'll find several of our members in there: Robyn Headifen, Derek Smith, and Pip Arnold.

Pip Arnold has made a number of videos for primary teachers on software tools like CODAP. She will continue to develop and share these as time allows. See here.

Rhys Christopher Jones's book: *Essential Maths Skills for Exploring Social Data: A Student's Workbook*, is now published and available here. The book and accompanying online resources will improve statistical understanding for social science students.

Our new journal, Statistics and Data Science Educator, SDSE, https://sdse.online/lessons.html, is proceeding. The first edition is published and available. The journal has been widely advertised via national newsletters and CensusAtSchool.

In January, the regional kaiarahi of the Networks of Expertise in Mathematics and Statistics met in Wellington. Mike Camden discussed the committee's aims with them. He was impressed with their awareness of the importance of statistics education in the school curriculum and the widespread need for professional development in stats. The need is very high for Provisionally Certified Teachers and Overseas Trained Teachers, and for teachers who did not have stats in their maths studies.

Since then, the national kaiarahi, Derek Smith, with his colleagues, has been active in informing teachers about resources for on-line learning.

NZAMT17 happens next year, in New Plymouth, and this is a first for that location. We are very pleased that Chris Wild will be the statistical plenary speaker.

Chris Wild continues work with the the International Data Science in Schools Project, IDSSP, http://www.idssp.org/. The project is considering ways of funding the writing of its planned resources.

The importance of statistical education

Meanwhile, the epidemic continues to show how important many statistical understandings are: in the design of sampling and testing, inference from samples to populations, modelling, probability and risk, time series analysis, and statistical graphics.

Local News

Statistics at ...

AgResearch Statistics Group

by MARYANN STAINCLIFFE

In March, **Timothy Bilton** successfully defended his thesis D*eveloping statistical methods for genetic analysis of genotypes from genotyping-by-sequencing data*. As a PhD student in both an academic institution and a CRI, Timothy lived a "double life", experiencing the joys of having double of (almost) everything (e.g., two offices, computers etc.) along with the challenges of splitting one's time (and resources) between two locations. There were a number of memorable moments throughout his PhD journey, including nearly getting stuck in France en-route to a conference (railway strikes!) and presenting to the AgResearch Executive team, but the most memorable was to walk into a team meeting to find that his supervisor (**Ken Dodds**) had organized a cake as celebration of his first publication with the best figure decorated on top. In June, he received the inaugural AgResearch Student Award for this publication, being judged the best scientific paper by a student within Agresearch, which comes with a generous travel grant to attend an international conference (though he is not too sure how to use it in the era of Covid). Timothy now holds a Postdoctoral position at AgResearch based at Invermay, Dunedin. He is working on analysing microbiome data of ruminants in livestock animals.

As statisticians at AgResearch we were able to work from home during lockdown, and this is how **Chikako van Koten** survived the new way of working:

My first step was to set up my "home office" in the dining room. We could take resources home from the office, including a laptop, keyboard, screens, mouse, headset and office chairs. I had to ignore the rather suspicious gaze of my dog who was concerned I was invading his favourite morning nap space!.

My second step was to get into a good routine of getting up at 7:30am (without the need to commute). I could sleep in and even take my dog for a morning run (if I felt like it) before signing into work while making breakfast & a cup of tea.

My third step was to keep the workday as normal as possible, although there were more phone calls and online meetings via Skype or Microsoft Teams with collaborators and other statistics team members. Of course, all this was under my dog's strict and hopeful "supervision" ("Can you play with me?").

My fourth step was to ensure I took breaks for health and safety reasons. These breaks included walks around my garden with my dog, and consuming multiple cups of tea and coffee plus a home-cooked lunch.

At first, I was unsure about the new way of working but, I must confess that I enjoyed staying and "surviving" at home and also surprised myself with how I managed to remain very productive working

from home. As a team we are very fortunate under the circumstance to be able to continue to work from home and have job security. But as lockdown is *now behind us, let all of us stand up and help each other with recovery while not forgetting the lessons we have learnt.*

AUT: Department of Mathematical Sciences

by NATE WICHITAKSORN

From the beginning of the first semester, the Department of Mathematical Sciences at AUT welcomes a new lecturer, Dr. **Patricio Maturana-Russel** (Lecturer in Analytics and Statistics).

Patricio completed his PhD in Statistics at the University of Auckland, supervised by Dr. **Steffen Klaere** and Dr. **Brendon Brewer**. After that, he continued his research work in the same department as a postdoctoral research fellow for 2 years, with Professor **Renate Meyer**. His research interests involve mainly the development and the computational implementation of Bayesian statistical methods, in particular with the applications in gravitational wave data analysis and phylogenetics.

AUT: Department of Biostatistics and Epidemiology

by TAK IKEDA

The Department of Biostatistics and Epidemiology (DoBE) at AUT has welcomed one new team member since the last newsletter, data manager **Nathan Henry**. Over the past few months, DoBE members experienced an extensive period of lockdown for the first time due to COVID-19. During this time, all members were able to work from home. However, for some members, particularly those who had papers to teach online and student interactions, working from home presented new and difficult challenges. Although lockdown was not ideal for everyone, the Department is grateful for being able to carry out most tasks even while working from home.

Head of Department **Nick Garrett**, **Tak Ikeda**, **Stéphane Janicot**, and **Ben Elliott** have been deeply involved in the Ministry of Health (MoH)-funded Effectiveness of a Face-to-Face Intervention for Problem Gambling RCT, steered by the Gambling and Addictions Research Centre (GARC). There has also been continued work on GARC's National Gambling Survey, funded by MoH. Final analysis has been completed for the NSC-funded PREVENTS study, a randomised controlled trial (RCT) of health and wellness coaching, steered by National Institute of Stroke and Neuroepidemiology (NISAN). **Priya Parmar** and Tak are named investigators in the successfully funded 5-year HRC Programme entitled "Measuring and Reducing the Burden of Stroke in NZ" steered by NISAN. The HRC-funded hearing and respiratory studies from the Pacific Islands Families Study had a successful closeout of recent waves. Other ongoing projects include the MBIE-funded Harmonised study, a Māori-centred project including a stepped wedge trial of a private social platform app for healthy relationships amongst taitamariki, the Violence Intervention Program for the District Health Board, and NZ Health Survey data on mental health and substance use through a consortium with Ko Awatea at Counties Manukau Health.

Melanie Moylan has taken on student supervisions in the Faculty of Health and Environmental Sciences, getting involved early in the students' program, providing assistance in the design of their projects and support for their statistical queries. Melanie and Tak have co-authored papers on topics such as sleep apnea, nasal high flow, and stroke.

Lastly, after 6 years in DoBE, Senior Research Officer **Janet Pearson** is leaving to pursue a PhD in social gerontology at the School of Population Health, The University of Auckland. We would like to congratulate her for taking on this new challenge and we wish her all the best for the future.

Tak with new member Nathan

AUT: A personal reflection

by ROBERT BOROTKANICS

World events have certainly made for interesting times. As we resume to 'normal', I recall and miss the quiet of the streets, as my ears tremble from the roar of the resuming traffic. The solitude also afforded time to learn how to culture and make sourdough bread; still not perfected. Research and postgraduate training remained productive over this time, with success in 56 student biostatistics/epidemiology consultations and training sessions in the past six months. Two new postgraduates have started their research studies. Papers continue to be published; i.e.,

1. Shore ND, et al., A comparison of Prostate Health Index, total PSA, %free PSA and proPSA in a contemporary US population - the MiCheck-01 prospective trial. *Urologic Oncology*. 2020.
2. Belcher S, et al. Ten-year nationwide review of netball ankle and knee injuries in New Zealand. *Journal of Science and Medicine in Sport*. 2020.
3. McGeown JP, et al. Predicting sport-related mTBI symptom resolution trajectory using initial clinical assessment findings: a retrospective cohort study. *Sports Medicine*. December 2019.

The Australian Health Review, of which I am Associate Editor, continues to encourage health services, clinical studies and policy analyses with a New Zealand focus. More information is available here.

Department of Conservation

by Helene Thygesen

During 2020, the statisticians at the Department of Conservation had to prioritize adapting our training programs to the online environment. This is something that would be good to collaborate on with other institutions. So if there are other members who are providing online seminars, or whose staff might benefit from listening to our seminars on basic statistical methods (especially ecological applications), maybe we could get in touch?

With respect to research, we have improved on our modelling of visitor count data, and research on distance sampling and tree vital states is ongoing.

Nicholson Consulting

by Pip Bennett

Nicholson Consulting has been growing over the past 6 months. Senior Data Scientist - **Vinay Benny**, Operations Manager - **Max Forsyth**, Analyst - **Tristan Meyers** and Junior Data Scientist - **Faye Nielsen** have joined our team and we have moved into a brand-new office space in downtown Wellington. The lockdown meant no access to the IDI, however we have delivered to 19 happy clients including the model development lifecycle for MSD. This is a set of guidelines for operationalising algorithms safely including data science, ethics and privacy, change management, communications and governance. Our current projects include building a Te Reo Māori micro-simulation model as well as new work as a result of COVID-19 to contribute to economic recovery – so watch this space. Demand for data science in the industry is huge!

Plant and Food Research

by Duncan Hedderley

It has been an eventful few months. **Lindy Guo** is back from parental leave. **Linley Jesson** is developing an internal project around taonga data, recognizing what is a taonga, and our treaty obligations around the collection, use and reuse of data on them.

Oh yes, and everyone had to work from home for two months because of Covid-19. Our IT people kept us connected and able to work. The Data Science group changed our weekly 'virtual morning tea' to daily, which certainly helped me feel more connected. **Rodelyn Jaksons** circulated maths puzzles. On a more serious note, we recruited a number of staff who were not able to do field and lab work to help with image labelling for machine-learning projects. Fifty-seven PFR workers spent their lockdown putting boxes around fish, identifying fish spots and kiwifruit developmental phases, and putting circles around pollen grains. This was hugely beneficial for several projects using computer image recognition to automate manual tasks.

Linley also got her Software Carpentry Instructor Certification during the Lockdown.

Maryam and Tara Alavi working from home

You might remember the 'bear hunt' thing from Lockdown. The Jaksons in Christchurch didn't have a window visible from the street to put a bear in, so they painted some bears and put them on their front fence.

Wolf (left) and Felicity, with their handiwork

Department of Statistics, The University of Auckland

by Emma Lehrke

This has been an interesting year for everyone and here at the University of Auckland it has been no different. The lockdown saw us moving from in-person to online teaching and learning in the fourth week of semester one. This rapid change of circumstances was challenging for students and staff alike, however, we saw many rise to the challenge and there was a flood of innovation in response to the new environment. We are all looking forward to being back on campus for semester two.

Ihaka Lectures 2020:

Ihaka

With the COVID-19 lockdown we were only able to hold two of the planned Ihaka lectures. Professor **Simon Jackman**, Chief Executive Officer at the United States Studies Centre impressed us with his examination of recent successes and failures of predictive models of election outcomes. The following week Professor **Jennifer Hill** from New York University reviewed the conceptual issues involved in understanding causal mechanisms and described the potential for machine learning to improve our understanding of these mechanisms.

2020 Research Excellence Awards

Two members of our department were recognised in the recent announcement of the 2020 Research Excellence Awards at the University of Auckland.

Dr **Yalu Wen** was recognised with an Early Career Research Excellence Award. She is developing a novel Artificial Intelligence (AI) to leverage the enormous datasets collected in clinical trials. The proposed AI would gather knowledge from the unstructured documents of previous trials. This is a novel research area, with very little AI development focused on enhancing clinical trials.

James Russell

Associate Professor **James Russell** was recognised with a Research Excellence Award. He has led conservation science research to scale vertebrate pest control to larger areas. Drawing on the disciplines of ecology, genetics, statistics, social science and philosophy has led to major cross-disciplinary breakthroughs in conservation and dozens of high-impact publications that have altered the national and international scientific and public discourse on conservation science and invasive species management.

Modelling the pandemic: Associate Professor **Ilze Ziedins** from the Department of Statistics has been working alongside Dr **Mike O'Sullivan** and Associate Professor **Cameron Walker**, with experts from Te Pūnaha Matatini, on modelling the COVID-19 pandemic in New Zealand. Their work involved focusing on how ICUs and hospitals

will cope if the infection numbers get really bad. They looked at population models, then created stochastic models that allow more flexibility in modelling, which is particularly important to see the effects of people 'immigrating' back into New Zealand with COVID-19.

At the end of semester 1 our department won the Faculty of Science teaching award.

University of Otago: The Centre for Biostatistics on Dunedin Campus

by ANDREW GRAY

Like everyone else, it has been a challenging few months for the Centre due to COVID-19. Despite this, we have managed to continue most of our usual activities, including Associate Professor **Robin Turner** delivering, with help from the rest of the team, two introduction to biostatistics workshops in February and June and a sample size workshop in April (via Zoom). Dr **Ari Samaranayaka** delivered his own Stata workshop in February, with another instance of this always popular course planned for August. Robin has been part of a COVID-19 Statistical Advisory Group, along with Dr **Matt Parry** from Mathematics & Statistics at Otago.

During lockdown, we had plenty of practice with Zoom meetings, including daily hui iti to stay in touch with each other, leaving us all with a much better appreciation of the children and pets in our colleagues' households. We are always very grateful to our administrator **Joanna Flanagan** for keeping up organised and we are especially grateful to her for managing to do this during and after lockdown. COVID-19 forced Robin's Health Sciences first year biostatistics lectures to be delivered by video, so the students, unfortunately, did not receive their usual allowance of course-related M&Ms!

The New Zealand Medical Student Journal published the third article in their statistics primer series, another invited article from Robin, Ari, and Dr **Claire Cameron**, this time on parametric versus non-parametric statistical methods (see the April issue here, and the previous articles on ROC curves here and Kaplan-Meier plots here).

As well as resuming our face-to-face Centre meetings, we have also resumed our regular Zoom meetings with colleagues in Christchurch and Wellington and enjoyed a great presentation from Dr **Jonathan Williman** (who Zoomed in from Christchurch) about approaches to modelling socioeconomic deprivation, with much thought-provoking discussion afterwards.

Collectively, we submitted a University of Otago Research Grant application looking at the outcomes from biostatistical collaboration and we hope to have good news to share about that in the future.