



# The New Zealand Statistical Association Newsletter

Number 86

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# Welcome

by MATT PARRY

Kia ora koutou

No-one needs to be reminded that 2020 was a year like no other. And no-one needs to be told that 2021 will bring many challenges. However, given the way we responded last year – how we continued to work and teach and learn in stressful and uncertain circumstances – I think we can go into this new year with confidence.

As an organisation we can be justifiably proud of the contributions made by many of our members to NZ's COVID-19 response. I would like to acknowledge the leadership of past president Ian Westbrooke and then president Vanessa Cave who reached out to the Office of the Prime Minister's Chief Science Advisor at an early stage. We can also be proud of the input given by a number of NZSA members to the Coronavirus Statistical Advisory Group headed up by Richard Arnold. However, I am also aware that many contributions can be overlooked and go unacknowledged. If you know of any contribution – large or small – by an NZSA member I would love to hear from you.

Without doubt, one of the highlights of 2020 was the NZSA UnConference held in November in Auckland. We are indebted to James Curran for having this idea and for making it happen. Perhaps fancy dress conference dinners are now a tradition? A special thanks to the local organising team, especially Simon Urbanek, and sponsors: the University of Auckland, iNZight and Harmonic Analytics.

Congratulations to our 2020 award recipients: Renate Meyer (Littlejohn Award) and Chris Triggs (Campbell Award). It was my honour to hand out the awards at the conference and you can read more about their achievements in this newsletter. I would also like to congratulate

Michelle Dalrymple, who won the 2019 Prime Minister's Science Teacher Prize. The prize was awarded in 2020 and Michelle was featured in our previous newsletter.



This year, we have ANZSC 2021 to look forward to. This is a significant conference as it brings us together with the Statistical Society of Australia and the Australian Conference on Teaching Statistics. The conference is being held online July 5-9, and the organisers are pulling out all the stops to make this an engaging and valuable experience.

Finally, I would like to say thank you to Vanessa Cave, for all her hard work during her term as president, especially during the difficulties of last year. It is an honour to take over as president from her!

Noho ora mai  
Matt



# Editorial

by POPPY MILLER

Kia ora koutou

I hope that you all enjoyed a sunny break over Christmas and the New Year. I feel like the last few months have flown by! Highlights include:

- finishing my PhD in November
- attending the NZSA UnConference
- camping in the Catlins in early December (yes, it rained the entire time!)
- flying to Dunedin to celebrate my brothers graduation (unfortunately cancelled due to a bomb threat)
- ... and finally, relaxing at the beach with family over Christmas

I am very grateful to Marie Fitch, the NZSA exec team and contributors to the newsletter without whom I would not have been able to produce this newsletter.

The next newsletter is planned for July, contributions are always welcome, copy to me by mid-June please.

Ngā mihi

Poppy



A photograph of a coastal scene. In the foreground, there is a large, gnarled tree with vibrant red flowers. Beyond the tree is a wide, sandy beach that meets the ocean. In the background, a steep, rocky cliff rises from the beach, and the sky is a clear blue with some light clouds. A few people can be seen walking on the beach in the distance.

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# Conferences

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## 2020 NZSA UnConference

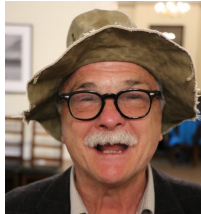
by POPPY MILLER

The 2020 NZSA UnConference was held in Auckland in the final week of November and was a resounding success. Congratulations to Chris Triggs and Renate Meyer for winning the two NZSA awards and Jie Kang, Agnes Yongshi Deng and Amy Renelle for winning the Harmonic Analytics Student talk prizes (see [here](#) for photos and details).

There were also many prize-worthy costumes from the "Outrageous" conference dinner including Vanessa Cave and James Curran's matching purple steam punk outfits and a dazzling array of hats, headpieces and wigs. See more photos from the 2019 conference at: [here](#)







## 2021 Conferences

### ANZSC 2021



Unfortunately, the ANZSC2020 joint meeting of the New Zealand Statistical Association and the Statistical Society of Australia was not able to go ahead in 2020. However, it will now be held as a virtual conference on July 5-9 2021 with the teaching conference OZCOTS (a separate registration) running on the 8th and 9th.

Confirmed keynote speakers are **Kerrie**

**Mengersen** (QUT), **Renate Meyer** (University of Auckland), **Frauke Kreuter** (University of Maryland), **Robert Gould** (UCLA) and **Noel Cressie** (Moran Lecturer, University of Wollongong).

Abstracts for contributed talks are being accepted until March 15 2021, with notification on 31st March.

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# Stories of interest

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## 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?

### Heather Jenkins



I'm the Website Administrator and I took on the role recently, in December 2020. I'm a Statistical Scientist at Plant & Food Research in Lincoln. I took an extended break from full-time work when I had kids. I completed a GradDip in Applied Stats at Massey and I've been with PFR since October 2019. Previously I studied maths. I've worked at the Pacific Institute for the Mathematical Sciences in Vancouver and casually for Massey. Outside of work I enjoy reading, walking, doing puzzles, art, and drinking good coffee.

## NZSA Awards 2020

### NZSA Campbell Award

*The Campbell Award is the Association's premier whole-of-career award, aimed at recognising an individual's sustained contribution to the promotion and development of statistics. Nominees must excel in at least one of the following areas: statistical research, statistics education, major contributions to New Zealand through statistical projects, and a sustained record of leadership in, and service to, statistics in New Zealand.*

#### Chris Triggs

University of Auckland

Chris has made important contributions to statistics in New Zealand, particularly with regard to research and consulting. He is an accomplished researcher with an impressive collection of published articles and books. He has served on the editorial boards of *Biometrics*, and the *Australian & New Zealand Journal of Statistics*.

Chris also has a strong record in statistical consulting. He established the University of Auckland consulting centre, and has been a consulting statistician for AgResearch, HortResearch, ESR and NIWA.

### Littlejohn Research Award

*The Littlejohn Award is the Association's premier research award, recognizing excellence based on publications during the five calendar years preceding the date of the award.*

#### Renate Meyer

University of Auckland

Renate received the award for her outstanding work in the field of Bayesian Inference and its applications. She has made significant contributions in statistics, as well as in the fields of astrophysics, biostatistics, computational statistics, ecology and econometrics. Renate is the recipient of multiple grants recognising her work and expertise, the most recent of which was a James Cook Fellowship.





## NZSA Student Talk Winner

*The NZSA Student Talk Award recognises the best student presentation at the annual NZSA conference.*

### Jie Kang

Otago University

Thanks to the NZSA for offering the student travel grant and the prize. Thank you to all my seven supervisors and advisors (Phillip Wilcox, Ken Dodds, Mik Black, Jeanne Jacobs, Marty Faville, Dan Milbourne and Stephen Byrne) for their inspirations and guidance.

I was born and raised in Xi'an, China (approximately 2200 years after The Terracotta Army). I'm doing my PhD in quantitative genetics at the University of Otago. My research is about applying statistical thinking into solving real-life problems, which, in my case, is to make better use of genomic data.

## NZSA Student Talk Highly Commended

*The NZSA Student Talk Highly Commended Award recognises an excellent student presentation at the annual NZSA conference.*

### Agnes Yongshi Deng

University of Auckland

I am a PhD student at the University of Auckland under the supervision of Professor Thomas Lumley and Dr Beatrix Jones. My research focuses on multiple imputation through machine learning and I have been working on an R package *mice* which aims to provide a scalable solution for missing data. Hyperparameter tuning is regarded as crucial to the performance of many machine learning algorithms. At the NZSA 2020 UnConference, I presented some of my findings on the performance of different tuning strategies.



Ken Dodds & Jie Kang



## NZSA Student Talk Highly Commended

*The NZSA Student Talk Highly Commended Award recognises an excellent student presentation at the annual NZSA conference.*

### Amy Renelle

University of Auckland

Amy Renelle is a third year PhD student at the University of Auckland, specialising in Statistics Education. Her research is primarily on randomness misconceptions - an idea underpinning her talk at the NZSA UnConference. Amy's talk looked at how multisensory learning could be used in a classroom setting to help attend to randomness misconceptions, like the Gamblers Fallacy.



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# News from the Statistics Education Teams

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## Statistics Education News

by MAXINE PFANNKUCH



### People in statistics education research

*Rachel Passmore* and *Malia Puloka* gave their doctoral proposal presentations online as part of the PhD Provisional Year Review requirement and therefore they are now fully registered. Rachel managed to travel to the UK in February to gather information on capstone courses as part of her Margaret Goldstone Travel award. Covid, however, interrupted her data collection on the statistics capstone course in 2020, whereas Malia had fortunately gathered all her data from a school at the end of 2019. *Amy Renelle's* data collection on multisensory learning was also interrupted, but she was pleased at the end of the year to receive a Highly Commended for her talk at the NZSA UnConference. *Anne Patel* used the 2020 lockdowns to produce a draft of her whole PhD thesis.

*Anna Fergusson's* foray into statistics and data science has had many spin-offs, with two awards from Auckland University, the Margaret Goldstone Travel Award and Early Career Teaching Excellence Award. Two proposals for papers, based on her current thesis research work, have been accepted. *Chris Wild* has continued with his involvement in the International Data Science in School Project and is currently writing a paper with Anna for a special issue on Data Science in Teaching Statistics. *Stephanie Budgett* has nearly completed her term as Vice President

on the International Association for Statistical Education (IASE) Executive Committee. *Pip Arnold* has been busy writing a Handbook for Years 1 to 11 teachers on the teaching of statistics as part of her Beeby Award. The book will be launched at the NZAMT conference in New Plymouth in October. Pip was Proceedings Editor for the IASE Online Roundtable Conference held in July 2020. See [here](#).

### Statistics Teacher Day, 30 November 2020, Auckland

The Department of Statistics, Auckland University and the Auckland Mathematics Association (AMA) organized and ran a very successful Statistics Teacher Day at Auckland University with 250 teachers attending. The day was very ably led by Anna Fergusson and Emma Lehrke. The first plenary speaker was Andrew Sporle, Auckland University, who gave a very well-received talk on “Stats done different – why it’s an awesome time to be a sort of statistician in Aotearoa New Zealand”. The second plenary speaker was Dr Michelle Dalrymple, Cashmere High School, Christchurch, who enthusiastically engaged teachers in “10 teaching activities: whanaungatanga – teaching through relationships” based on her philosophy and practice of building relationships with her students. Workshops for teachers ranged from teaching the current NZ statistics curriculum to

introducing teachers to what a future statistics curriculum might include. Pip, Anna, Malia, Stephanie, Amy and Anne gave workshops.

#### **AMA Saturday Morning Online Workshops**

Because of Covid, the innovation of free online workshops meant that professional development for teachers could be nationwide. With at least 200 teachers registering for the Term 3- and 4-Days, statistics teaching ideas could reach many more teachers, both primary and secondary. In Term 4, Professor Chris Franklin, American Statistical Association Ambassador for K-12 gave a very interesting talk on “The Role of Questioning and Non-traditional Data Types”. See [here](#). Pip, Anne and Anna contributed to these workshops.

**CensusAtSchool Project.** The CensusAtSchool project team are currently preparing the 2021 census. Chris Wild and Rachel Cunliffe are Co-Directors of the Project. Anne Patel is responsible for the teaching resources on the website. See [here](#).

**Statistical Reasoning, Thinking and Literacy Forum (SRTL-12), 5-11 July, 2021, Utrecht, The Netherlands.** The conference theme is “Re-thinking learners’ reasoning with non-traditional data”. Proposals are currently being reviewed. It is not known yet what the format will be. See [here](#).

**World Statistics Congress will be held online between July 11-15, 2021.** The deadline for submitting Invited Papers Sessions was November 30. Over the past decades, active participation of IASE members at the WSC has been strong. Unfortunately, the online format means New Zealand participants will be faced with a very difficult time zone. For more details, see [here](#).

**IASE 2021 Satellite Online Conference August 30 to September 4, 2021.** The theme of the conference is “Statistics Education in the Era of Data Science”. Abstracts are due on 28th February, 2021. Anna is on the IASE international program committee. See [here](#).





## The changing world brings changes for statistical education

In 2020, the big task that we'd been expecting went on hold. This is the Ministry of Education's **NCEA Review**, and in particular the **Review of Achievement Standards (RAS)**. During the 2020 lockdowns, the Ministry cancelled meetings and put its resources into supporting online learning.

The RAS includes removing all the NCEA Achievement Standards, and writing over 1000 new ones. The Ministry plans to draft all the Level 1 Achievement Standards and assessment tasks by the end of 2021, pilot and revise them in 2022, and implement them in 2023. Levels 2 and 3 would get attention in following years.

We have several of our members and contacts involved with the original RAS group for Mathematics and Statistics, the two Subject Expert Groups (SEGs) for it, and the SEG for Literacy and Numeracy. We intend to make our skills available to these groups, and to keep good communications going with the Ministry.

The SEGs for the Mathematics and Statistics standards started work last year, and wrote the new Level 1 standards in December. These will be released for feedback and comments early this year.

You'll find more detail in the Ministry's Education Conversation, Korero Matauranga: NCEA Review ([education.govt.nz](https://education.govt.nz))

The new proposed **Literacy and Numeracy Standards** were released for comment on 18 November 2020. Our comments included:

- recommendations for some wording improvements to the content section

- support for the focus on mathematical and statistical processes as well as content
- support for the valuing of contexts, the ability to connect to local curricula, and the direct connection to Māori and Pasifika students' contexts
- concerns that some teachers may be tempted to deliver a programme called numeracy, and therefore not consider the wider mathematics and statistics curriculum and the preparing of students for later years of mathematics and statistics learning
- recommendations for the Ministry to reinforce that the Standard is a benchmark, and not the curriculum or a teaching programme.

The draft Numeracy Standard and its Learning Matrix are here: [Have your say: Draft NCEA Literacy & Numeracy standards education.govt.nz](https://education.govt.nz)

NZQA has been investigating ways of assessing mathematics and statistics for NCEA in a digital environment. As a start on statistics, NZQA built three digital statistics activities for Achievement Standard 91586, *Apply probability distributions in solving problems*, a Level 3 externally assessed standard. The development team involved four of our members. The digital activities were trialled in nearly 20 schools during term 3 2020.

The report on the trial has been published on the NZQA website. You can find it [here](#).

Anna Fergusson's new software tools are part of the trials. These tools and an introductory video are [here](#).

Our new journal, **Statistics and Data Science Educator**, SDSE (see [here](#)), progressed in 2020: four more papers were published, and more are

on the way. We see professional development opportunities for teachers in writing and peer reviewing the papers. We congratulate Maxine Pfannkuch and Anna Fergusson, on getting the journal up and running.

The next **NZAMT conference** happens this year from 12 to 14 October in New Plymouth, and is a first for Taranaki. NZSA is again supporting the statistical plenary speaker, who is Chris Wild.

We now have a **country convenor** for the **International Statistical Literacy Project**. Mark Hooper has taken up this role.

Our USA member, Christine Franklin, has kept us updated with the progress of **GAISE II**, which is *Pre-K-12 Guidelines for Assessment and Instruction in Statistics Education II: A Framework for Statistics and Data Science Education*. It has just been published here: [Guidelines for Assessment and Instruction in Statistics Education Reports \(amstat.org\)](https://amstat.org)

As the introduction says, “GAISE II incorporates the new skills needed for making sense of data today while maintaining the spirit of GAISE I”. GAISE I (2005) was a fundamental statement of progressive principles for statistical education, and GAISE II updates it in the light of changes in data, technology, and pedagogy.

Christine co-chaired the writing team of seven, and our Pip Arnold was a member of this team.

In July, the government released the **Algorithm Charter for Aotearoa New Zealand**, which mentions data and statistical methods. Statistical literacy in future curricula needs to consider concepts like artificial intelligence and machine learning bias.

The **International Association for Statistical Education (IASE) 2020 Roundtable Conference** took place as a virtual conference on July 6-12, 2020. Chris Wild’s keynote speech is [here](#) (from minute 4 to minute 33). Stephanie Budgett was a discussant. Pip Arnold edited the proceedings: [here](#)

The **iNZight** software is being polished to make it more appropriate for use in other parts of the Pacific.

Finally, we began our last meeting of 2020 with a visit from Andrew Sporle, who presented on the **Māori Data Sovereignty Network, Te Mana Raraunga: [here](#)**. We heard about indigenous data worldwide, the exciting growing data resources here, and the need for statistical education to produce statisticians who can work with this data.

### Recognition for members

As we noted in the last newsletter, committee member **Michelle Dalyrymple** received the Prime Minister’s Science Teacher prize for the year (the 2019 prize in fact). The statements about the winners are now live. For Michelle’s, please see: [2019 Prime Minister’s Science Teacher Winner | The Prime Minister’s Science Prizes \(pmscienceprizes.org.nz\)](https://pmscienceprizes.org.nz). It contains a short video in which she states what she and her team see as the values of statistical education.

Two awards from the University of Auckland went in 2020 to **Anna Fergusson**: the Margaret Goldstone Travel Award, and the Early Career Teaching Excellence Award.

### We met four times last year.

### Is 2021 a prime year?

If you need an answer, it will be in the next newsletter! Whether it is or not, we decided to trim our priorities for 2021 to two:

1. Inputs into the Ministry’s Review of Achievement Standards
2. Work, wherever opportunities arise, on the future of our school statistics curriculum.

We plan to continue these ongoing activities:

1. International collaboration with partners in the USA, UK, Australia, and elsewhere
2. Reviewing implementation of the statistics strand of the NZ Curriculum, with inclusion of assessment. [The operational side of Priority 2]
3. Progressing the New Zealand online statistics teaching journal: Statistics and Data Science Educator (SDSE) <https://sdse.online/>
4. Statistics education in the primary sector



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# Local News

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## Statistics at ...

### AgResearch Statistics Group

by POPPY MILLER



Catherine Cameron and Martin Upsdell are retiring after many years with AgResearch, and Maryann is on maternity leave for another few months. We managed to boost the ranks with the addition of three statistics interns over the summer. Jordan Clarke worked with Ken Dodds on salmon modelling, Josh Forward worked with Alasdair Noble on Bayesian models for emission factors from chamber data, and Conor Hassan worked with Poppy Miller on Bayesian models for drench resistance.

**Conor Hassan:** I completed a Statistics honours degree at the University of Otago in 2020 with a project on modeling the effect that fake news could have on election outcomes. Over the summer I had the privilege to work with Poppy Miller at AgResearch Grasslands (Palmerston North). Our project was on building hierarchical models for estimating the efficacy of chemical drenches on NZ farms. I am a big fan of Bayesian Statistics, and so it was awesome to get to spent time using Stan and to work with someone as knowledgeable as Poppy. Our hope is that inference using our models could give farmers a fuller perspective of the probability of the levels of parasitic resistance present on their farms.



Neil Cox, Nauman Maqbool, Harold Henderson, Catherine Cameron and Martin Upsdell

**Josh Forward:** I am a recent graduate of Otago University (although I call Tauranga home) with a Bachelor of Science in Statistics, and will be returning to Dunedin in 2021 to complete a Statistics honours. I'm lucky enough to be working alongside Alasdair Noble as part of AgResearch's summer internship programme, based at the Lincoln campus. Our project is on modelling of emission factors from chamber data, with the primary focus being to investigate the size of relative errors at different stages in the process. We are building a Bayesian model, estimating fluxes from the raw gas measurements and investigating different models for the summation of fluxes over time. I feel privileged to have been given this opportunity

to work alongside some of the top minds in the country, not only in my field but all over the scientific community, as the experience will prove invaluable for my study and professional career going forward.





Nate Wichitaksorn has been appointed as a visiting research advisor at Thailand Development Research Institute where he led a number of joint research projects and made a couple of virtual presentations on labour econometrics and household income analysis using mixed-frequency data methods. Nate was also invited to give a virtual presentation at International Conference in Economics and Business by Can Tho University, Vietnam, on December 18,

2020 where he presented a joint research work on risk and income diversification using quantile instrumental variable models. Thinking positively, COVID-19 created an opportunity for Nate to attend the virtual 14th International Conference on Computational and Financial Econometrics and 13th International Conference of Computational and Methodological Statistics, which were held during December 19-21, 2020 in UK.



### Staffing Update:

Lisa Thomasen is on parental leave and will be back with us early February. Xin Zhou joined us in November 2019 after completing his PhD at Massey on Fractional Non-conformance Assessment under the supervision of Dr. Govindaraju and Prof. Jones. Xin's key area of study was Statistical Process Control. He also brings experience from working at National University of Singapore and Vela Diagnostics (Singapore). Rory Ellis joined in August to initially cover Lisa's maternity leave. He comes from Canterbury University where he is just finishing his PhD on The use of Bayesian Networks in Grape Yield Prediction, under the supervision of Dr Gerhard. Maree Luckman will retire in February this year, having started at the, then named, NZ Dairy Research Institute (now FRDC) in 1995. She has been tasked with sharing knowledge with Xin and Rory before then.

### Work focus update:

We continue to focus on statistical support for research projects but with increased emphasis on Data Management to enable greater use of analytics and to better utilise data across the research institute. We are working on applying a new way of working we have termed “proactive collaboration” where we agree with the researchers how we will engage and communicate throughout a project. The aim is to have open and transparent communication channels. Last year we successfully ran a series of online training sessions using Microsoft Teams. The sessions included building interactive word clouds and running MENTI quizzes that were successful engagement tools. We are looking to run online and onsite training courses again this year.

## A few snippets from Maree's plenary talk at NZSA UnConference

- My first piece of advice – stick at it – be tenacious and sometimes just surviving the year, passing a paper and not getting an “A”, is OK.
- The experience I had at Nielsen’s of actually designing and managing market research studies for customers then analysing, interpreting and presenting the outcomes has been amazingly useful to my recent work at Fonterra – it goes to prove even something that is tough and may seem like one of life’s mistakes still builds your understanding of how the world works - no experience is ever wasted.
- I have just realised I am an expert generalist – and these are a few things I know to be true:
  - There is no such thing as a Quick Question
  - The answer is never 7 – whatever the question.

- It is also OK in any role to say “Cripes, I will have to think about that and get back to you”.
- It is even more OK to say “NO!”
- I think the statisticians’ value comes from understanding how to define problems and asking people how they think the data they will collect will answer that question. What I often ask is – “what does success look like” – this covers pure research, engineering issues as well as market research.
- I like to think we as statisticians are the UNBIASED FILTER across the results – we do not have so much invested in the results in terms of our reputation/career but we have to have COURAGE to disagree and be absolutely sure about the reporting.
- A good consultation always starts out with a question. And keep questioning until you have enough information to fully understand the procedures or processes; and the ‘client’ has felt heard and respected.
- How do you end up being able to question sufficiently – be purposely nosey!
- How do you get to know people and establish a TRUST RELATIONSHIP with them – it can be hard but “Walk and Talk” and “corridor conversations” are a critical part of the Comms Toolbox because if you cannot talk to people it is going to be hard to make sure you know what they need and what they understand.
- Humour relaxes people and then they are better able to learn and take on ideas. Tell a joke occasionally. If you act relaxed so will the client!
- One of the best statistics communicators is David Spiegelhalter of Cambridge University in UK – I cannot recommend strongly enough that you get a copy of his book if you want to learn how to tell stories of stats – he tells a good story without confusing – gets the key facts across in a non-threatening way. (The Art of Statistics, Learning from Data. David Spiegelhalter, Pelican Books, 2020)





The end of 2020 saw lots more growth for Nicholson Consulting and our team. We were excited to have many new team members come onboard; Arianna Reri - Office Administrator, Kenny Graham - Data Scientist, Nick Walshe - Senior Data Scientist, Linnley Neumann - People Experience Lead and Zara Soleimani - Data Scientist. Nicholson Consulting welcomed our first data science intern, Vadim Pletzer, from Victoria University and had team members graduate with a PhD, Masters degree and undergraduate degree in December. We bid a bitter sweet goodbye to Tristan Meyers who has taken his meteorology expertise to NIWA - we are sure he will be a great asset to their team.

Our projects were just as busy – the completion of the Model Development Lifecycle (MDL) for MSD is one of many highlights. The MDL is now in use by several government organisations to manage their delivery, governance and sign-off process for algorithms in a way that is safe, transparent

and highly maintainable. By doing so, these organisations can ensure compliance with the Algorithm Charter while also reducing their own risks and minimising the amount of compliance required. MSD have kindly made the MDL available to everyone under a Creative Commons licence so it can be used free of charge by any government or private organisation. Another highlight has been the commencement of a multi-year partnership with Springload, Āpōpō and the Tertiary Education Commission to create an online careers planning tool that will help, among others, people who have been adversely affected by COVID-19.

As a business we refreshed our vision to represent our values focusing analytics for the good of our communities and launched a brand new website [here](#). Our team has expanded to embrace new opportunities and we are looking forward to 2021.





# Plant and Food Research

by DUNCAN HEDDERLEY



Patrick Connolly retired from Plant and Food just before Christmas. He had been with us at our Mt Albert (Auckland) site 25 years. Initially he took over some of John Maindonald's work; most recently he had several data visualisation projects. Kate Richards has also left us, though only temporarily, to have a baby. Hudson arrived in

early December.

Mark Wohlers, Lindy Guo, Rodelyn Jaksons, Heather Jenkins and Catherine McKenzie attended the NZSA UnConference in Auckland at the end of November. Heather has taken on the role of NZSA webmaster from Catherine





Reflecting the feelings of many in the words of our ringmaster (or HoD) Professor James Curran: “COVID-19 made life very difficult in a number of ways in 2020, and it definitely interrupted traditional academic life”. Yet, as I speak to my family and colleagues overseas, we’ve not got much to complain about here in NZ.

Over the last few months, the department has had a rather exciting time! In November we hosted the NZSA (Un)Conference. Despite a no-frills affair and lacking a Gold Coast vibe, we still managed to pull it off. We saw a day and a half of top-notch talks, an attendance of 120, the NZSA AGM, and of course the fancy dress dinner! Thanks go to Professor James Curran, NZSA President Vanessa Cave, NZSA Treasurer Daniel Gerhard, Dr Simon Urbanek, and Joei Mudaliar for the organisation, and NZSA, iNZight NZ Ltd, and Harmonic for sponsorship.



BBQ organising committee: left to right Shanika Wickramasuriya, Earo Wang, Ben Stevenson, me, Joei Mudaliar, and Matt Edwards (modelling a beer).

To see out 2020 and in lieu of our annual Christmas function, we held a potluck BBQ in the Auckland Domain. Amongst the fun and sausages there were prizes up for grabs for the winners of a department-themed quiz. Agnes Yongshi Deng,

Yujin Jenny Kim, and Dr Azam Asanjarani fought off the competition to claim the rewards.



Quiz winners: left to right PhD students Agnes Yongshi Deng & Yujin Jenny Kim, and Lecturer Dr Azam Asanjarani. Prizes pictured are printed aRt generated from @djnavarro’s R packages [here](#)

We’ve seen two fantastic inaugural lectures. One was given by Professor Rachel Fewster (watch *From sea snails to right whales: a walk on the wild side of statistics* [here](#)). Rachel was also awarded a Marsden grant as a co-principle investigator with Professor Martin Hazelton (University of Otago), alongside our own Dr Jesse Goodman as an AI, for their project “Inference for statistical linear inverse problems: theory and practice”. Professor Renate Meyer also gave a fantastic inaugural lecture (*When spacetime trembles – forensic statistics of black hole mergers* was unfortunately not recorded; it was however cosmic—take my word for it). On top of this Renate received the NZSA Littlejohn Award to recognise her research excellence.

We’ve had a number of other staff members

win awards. Most notably, for his contribution to the promotion and development of statistics throughout his career, Professor Chris Triggs received the NZSA Campbell Award. To mark his significant contributions to the forensic sciences, Dr John Buckleton received the Adelaide Medal, awarded by the International Association of Forensic Sciences. Anna Fergusson scooped two awards, receiving both the Goldstone Travelling Award and the University of Auckland Early Career Excellence in Teaching Award. Anna (alongside Emma Lehrke) also hosted the Statistics Teachers' Day with the theme *Bring Your Own 'big ideas' for teaching statistics*.

The department has seen a bumper number of promotions awarded this round. As of February 1, Associate Professor James Russell will become Professor James Russell, Dr Yalu Wen will be promoted to Senior Lecturer above the bar, Drs Jesse Goodman and Ben Stevenson will both become Senior Lecturers, Anna Fergusson will be at PTF4, and both Susan Wingfield and Emma Lehrke (your usual author) will be at PTF3. A massive congratulations to them all!

Perhaps, however, the busiest member of our department over the last few months has been Dr

Claudia Rivera Rodriguez who

- was awarded a Marsden Fast Start grant as PI for her research proposal entitled *Methods for the analysis of complex routinely collected data*,
- was applauded for her dedication to students (see [here](#) for a testimonial), and
- gave birth!



Tomas Lucas-Rivera, born on Dec 16

That's about it for this round, so now it's just fingers crossed for a smooth semester one!



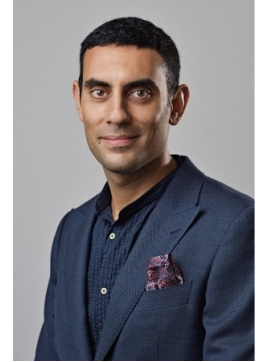
University of Waikato has started encouraging the use of online delivery methods for teaching. For the first time, some of the STATS papers were taught as almost fully online papers in the second half of 2020. Based on the positive feedback from the students, we plan to continue experimenting further to explore the online teaching aspects in 2021. Rediscovering teaching this way has been an interesting learning experience.

A major administrative restructuring within the School of Computing and Mathematical sciences saw the position of the Statistics Convenor (who reported to the Chairperson of the Department of Mathematics) being disbanded. All academic staff in the school were asked to join one of the

four new departments. Han Gan, Paul Brown and Chaitanya Joshi decided to continue to be with the Department of Mathematics. Bob Durrant and Lyn Hunt were absorbed into the Department of Computer Science and the Department of Software Engineering, respectively. This restructuring is not expected to have any impact on the teaching or research areas of the staff members.

While Han Gan gave a talk at the virtual Australian Mathematical Society conference, Chaitanya Joshi and PhD student Julia Gasston enjoyed attending the 'in-person' NZSA conference at University of Auckland.





Kia ora koutou, e te tau hou

I hope you are all well rested and energised for 2021.

Given this is my first opportunity to address the wonderful community of Kiwi statisticians and like-minded individuals, I thought I would start off with a bit about me, before delving into the work I'm doing.

My name's Mazen Kassis and I migrated to Aotearoa from the West Island (otherwise known as Australia) about 1.5 years ago, to join Foodstuffs North Island (FSNI). My academic background is in computer science and statistics and I spent several years in my early career specialising in biostatistics. Since then, I applied myself in a variety of industries, including financial services, media and entertainment, before settling here in the grocery retail/wholesale sector.

I was privileged to become a member of the New Zealand Statistical Association in 2020 and have been an Accredited Statistician with the Statistical Society of Australia since 2014.

For those unfamiliar, FSNI is a 100% Kiwi-owned grocery cooperative, and the parent of well known and loved Kiwi brands like New World, Pak'nSave, Four Square, Liquorland and Gilmours. We employ over 24,000 people, our annual retail and wholesale sales amount to over \$8 billion and over 3 million Kiwis each week rely on us to help keep them fed.

Our purpose is to make sure New Zealanders get more out of life. We aspire to make this happen by being one of the most customer driven retailers

in the world. But what does this mean? Well, at its core, it is about appreciating that everything we do ultimately affects our customers, thereby ensuring we put them at the centre of every decision we make.

As the inaugural custodian of the Head of Data and Analytics (DnA) role at FSNI, I see it as my duty to help lead efforts to create an environment where every decision is data-driven and customer focussed. Of course, this requires concerted effort, and I am proud to be part of a star team. Currently, DnA is about 25 people strong, and we are as diverse sociodemographically as we are in skillsets (although I am the only practicing statistician!). Our technical expertise encompasses data engineers, data architects, developers and data and reporting analysts. This reflects the data maturity journey we are on as an organisation. I think it is fair to say we are towards the early part in what will surely be a multi-year, multi-phase journey,

Speaking of journeys, 2020 was a "special" one. While COVID may have put a dent in our initial plans for the year, it also underscored how important data and analytics are, and will increasingly be, to our success. Given I raised the spectre of COVID, it may be interesting to put the "COVID-effect" into a little perspective and then leave you with some trends we noticed.

In the first few weeks of March 2020, the beginning of the first lockdown period, we sold enough yeast to bake over 700,000 loaves of bread. During the same period in the previous year (2019), we sold enough yeast to bake just over 100,000 loaves. In other words, it was

as if the population of the country increased several-fold virtually overnight. The experience during both rounds of lockdowns was that the challenges faced were mainly demand rather than supply driven. People across the country (and perhaps the world) behaved in ways that were different to the “ordinary” and difficult to predict with precision.

Some trends we noticed that are likely to factor more into our thinking going forward are:

- Increased awareness amongst our customers of our online shopping offering – keep in mind that only two of our retail grocery brands – New World and Pak’nSave – offer online shopping experiences and both of these are relatively new services (about a couple of years old).
- Increased trial and repeat purchase of online shopping – so not only were people more aware but more willing to experience online grocery shopping and try it out more often.
- More omni-channel shopping – meaning people flirted with both purchasing online and/or in-store in different ways than they had in the past.
- More grocery brand agnosticism with online shopping – willingness of people to shop anywhere, based on availability of desired product.
- More planning of shopping, both online and in-store, with the creation of shopping lists and customers having meal plans ready, for example.
- More focus on Kiwi made products, both online and in-store.





While the economics and Animal Evaluation teams in DairyNZ have been using R and git for statistics, modelling, presentation-quality graphics, web-based tools and version control for a while, more teams in DairyNZ are starting to upskill as it will be more and more part of our modern science workflow. To boost this, we are planning to run a beginners level course for our masters students and scientists in February/March, building on the resources from RStudio education, and starting with R for Data Science. We are also hoping to leverage cloud-based computing and data warehousing/data lake capabilities and are kicking off a proof of concept to test this workflow for our style of problem.

Earlier this year I attended STANCON, a virtual conference for the STAN community. STAN is a solution for statistical modeling and high-performance statistical computation, accessed from Python or R, which is used in many different fields and is popular with Bayesians. The conference had three sessions, 8 hours apart, easing global attendance. It had plenary speakers and six discussions, with the video talks distributed ahead to allow more time for discussion. There were some interesting applied and technical talks, and it included virtual networking where you could move to a “table” which starts a mini zoom where you could ask questions of presenters. This worked really well. They also sent some cool swag – the STAN sticker is now on my laptop!



Hello from the team at Epi-interactive!

We build dashboards. Our interdisciplinary team, based in Wellington's creativity hub, Miramar, connects data, science and people. In New Zealand we work with Universities (e.g. Massey, AUT), Crown Research Institutes (e.g. ESR, AgResearch), government (e.g. MoH and MPI) and industry collaborators (e.g. DairyNZ). Anchored by our passion to improve human, animal and environmental health, we make data and research more accessible by linking complex analytics with practical decisions. Examples of our work include the NZ COVID-19 Health Intelligence Dashboard, Epidemix and the Ministry of Health Data Explorers. You can learn more about our work [here](#).

For those of you looking into enterprise solutions for R we have just become New Zealand's Full Service RStudio Partner – so we can provide assistance with RStudio professional products such as subscriptions, training and license support.

Finally, we have two upcoming events which might be of interest:

**R Exchange:** [r exchange](#)

**R Shiny Masterclass Series:** [rshiny masterclass series](#)

Feel free to contact me at [petra@epi-interactive.com](mailto:petra@epi-interactive.com) to link up or swing by the office for a cuppa and a chat.

PS: We are also currently recruiting both an Operations Manager and a Software Developer / Data Analyst or Scientist. If you are interested in these roles please email [office@epi-interactive.com](mailto:office@epi-interactive.com) for further information.

