



# The New Zealand Statistical Association Newsletter

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# President's Welcome

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by BEATRIX JONES



Kia ora koutou,

In June, I had the pleasure of welcoming international delegates to the International Association for Statistical Education Roundtable and attending Andrew Sporle's keynote, "Can we build equitable statistical literacy in a world of automated analytics?" Congratulations to the organizing committee for putting together this conference, and for building a stats education community where the innovation occurring makes it natural for an international body to have an event like this in New Zealand, despite the logistical challenges. More details are available in the education committee's report in this Newsletter.

Looking ahead to our society meeting in December, I want to highlight key items for our AGM. As discussed last year, the new Incorporated Societies Act necessitates changes to our constitution, including specifying a dispute resolution process. Additionally, we will propose changes; the most important are these:

1. Eliminating corporate membership in favour of an industry engagement subcommittee, which will manage external engagements like sponsorships and networking events. This was recommended by a working group led by our current corporate rep Jie Kang, after consulting

our current corporate members.

2. Adjusting officer terms and introducing term limits. Officers have nominally been elected every year, but hardly ever serve only one year, with the effect that prospective officers feel quite uncertain about what they are committing to. The proposed changes include:

1. Introduce the office of 'past president' to provide continuity and allow presidents to wrap-up projects as needed. Functionally, we will elect a president every 2 years, but they will serve a four year term: 2 years as president and 2 as past president. An individual may not serve consecutive terms.
2. Membership Secretary and Treasurer: Four-year terms with up to three consecutive terms.
3. Secretary: Two-year term with no consecutive terms.
4. Four at-large officers: Two-year terms, re-electable up to three times.

The full proposed constitution will be shared with members before the AGM. The executive committee will also review our policy document, which is more flexible and more easily updated than the constitution.

I look forward to seeing you all in Wellington!

Until next time,

Beatrix

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# Editorial

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by DAVID HUIJSER



Kia ora koutou,

Welcome to Newsletter Issue 91! This is my debut as the editor of the NZSA Newsletter, and I'd like to kick things off by extending a big thank you to

Ben for his stellar work. I'm sure everyone shares my appreciation for his contributions. I'd also like to say thank you to Jie Kang for his work as our SECS Rep. I would like to welcome Muskaan as our new SECS rep and the co-chair of the Early Career & Student Statistician Conference 2024.

Sadly, we lost an important member of our NZSA community. Mike Doherty passed away on 30 May 2024. An obituary for Mike by Gary Dunnet, Vince Galvin and Diane Ramsay is later in this newsletter.

Since moving to New Zealand, I've developed a keen interest in the stories of our seasoned academic colleagues and emeriti. When I first arrived in Auckland, I enjoyed the occasional chats with Alastair Scott, and here in Wellington, I enjoy similar conversations with Shirley Pledger. It's truly mind-blowing for a young academic like me to imagine the monumental changes they've witnessed throughout their careers.

I recall a story from one of my teachers back in the Netherlands. When he was a young academic, performing large computations meant writing code or data on punch cards (sturdy sheets of card riddled with holes). To run these calculations, you'd have to walk across campus to a different building where the university's only computer was located, because the computer was about the size of a small van. Fast forward to today, and most of us have a computer at our fingertips, with R as the go-to language for statistical computing. But

let's not forget that before R, there was something called S.

I adore stories and anecdotes like these. It's fascinating to think that many statistical methods, concepts, or theories we now consider standard weren't developed or even feasible all that long ago. Take Bayesian statistics and MCMC methods, for example. While the Bayesian paradigm has been around for quite some time, it wasn't until the 1950s, with the development of the first MCMC method, that it gained traction—and even then, it took until the 1990s to really take off.

I can only imagine the wealth of stories our veteran colleagues hold, and I'm eager to hear and share them. With your feedback, I'd like to introduce a new section called "Back in the Day." My goal is to bring to life the stories and anecdotes of a bygone era in statistics and science—tales that might remind us of things we now take for granted in our tech-savvy world. A special thanks to Shirley Pledger, who provided the first story for this section. It's a delightful anecdote from her days as a student when she worked picking strawberries. Be sure to check it out later in the newsletter.

As always, please send any items for our next issue, planned for February 2025 to [newsletter@stats.org.nz](mailto:newsletter@stats.org.nz). I'm especially keen to recruit a few roving reporters to contribute articles about our NZSA Conference, which will take place from 2-4 December 2024, as advertised later in this issue. Whether you're from industry or academia, a veteran or a first-timer, all perspectives are welcome—so don't hesitate to volunteer as a reporter!

Hei konā mai,

David

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# Upcoming Conferences and Lecture Series

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## New Zealand Statistical Association 2024 Conference

by JOHN HAYWOOD



The School of Mathematics and Statistics at Victoria University of Wellington, New Zealand, is pleased to host the New Zealand Statistical Association (NZSA) 2024 Conference from Monday 2 to Wednesday 4 December 2024. The conference will be held in-person, on the Victoria

University of Wellington Kelburn Campus. All conference presentations will be in the MacLaurin building.

Abstract submissions are open until 31 October 2024.

For registration and more information please visit the conference [webpage](#).

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## Early Career & Student Statisticians Conference 2024 Conference

by MUSKAAN



We are thrilled to announce the Early Career & Student Statisticians Conference (ECSSC) 2024, set to take place from 18 to 21 November 2024 (Monday to Thursday). The conference is jointly organized by the ECSS Network of the Statistical Society of Australia (SSA) and the Student and Early Career Statisticians Network (SECS) of the New Zealand Statistical Association (NZSA) and this biennial event is designed to support and advance the careers of early career and student statisticians.

This conference will be a hybrid event over four half-days, with local hubs in Perth, Hobart and Christchurch. Presentations will be livestreamed to all hubs and the online audience. We encourage delegates to attend the local hub in Christchurch for an immersive experience. The

aims of ECSSC 2024 are:

- **Socialize & Share Ideas:** Connect with peers to exchange ideas and experiences.
- **Expand Networks:** Build and enhance professional relationships for future collaboration.
- **Explore New Techniques:** Discuss the latest techniques and technologies in statistics and data science.
- **Promote Statistics:** Highlight the role of statistics in academia, government, and industry.

The fourth day will feature an included workshop as part of your registration. For more details and to register, visit our conference [website](#).

We look forward to welcoming you to ECSSC 2024!



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# Obituaries

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## Mike Doherty

by GARY DUNNET, VINCE GALVIN, DIANE RAMSAY



At Stats NZ we were very sad to get the news that Mike Doherty had died. Mike was a life member of the NZSA, and was an enthusiastic contributor to the Association. At a memorial gathering held at Stats NZ recently a range of colleagues shared reflections and told stories about Mike;

Ex Government Statistician Len Cook said, “I recruited Mike about 1977 after I heard about him from someone who knew him. He was managing home insulation in the Ministry of Energy Resources and not being properly used.

He came over, we chatted, and he stayed.” Mike spent the rest of his career at Stats NZ, in what is known today as Methods and Design, becoming Director Statistical Methods and then Principal Methodologist. Mike retired from Stats at the end of 2012. Mike’s first love was seasonal adjustment and he developed what became known as the Doherty filter within X11, the package we use to do seasonal adjustment. However, despite somewhat disparagingly referring to it as “simple design” he became one of our experts on sample

design and variance estimation. He developed the methodology that was used to estimate whether 10% of registered voters had signed a petition in order to initiate a non-binding referendum under the Citizen's Initiated Referenda Act (1993). As much as the work he did was the way he did it. Mike was a "true" mathematician who loved nothing better than getting stuck into deep and complex theory usually accompanied by pages of complex algebraic calculations. Gary Dunnet recalls a time when Mike and Chris Hansen (another ex-methodologist) had a competition to see who could solve a particular problem first, Mike with his pages of mathematical proofs and Chris writing SAS code to perform a simulation. No-one seems to remember who won, but everyone remembers that both approaches gained followers. Multiple people at our gathering told stories of explaining a problem to Mike, getting non-committal grunts from him and then being presented the next morning with sheets of paper covered with hand written algebra proving a point

or illuminating a way ahead. All the recipients said they treasured these, they became "north stars" for the work they were doing. A devoted film buff, his first priority for leave was the Wellington Film Festival. When this was a smaller event in the old days he used to spend all day every day at the festival and go to every film. He carried a couple of interests from his university days with him through his life. He had studied algebraic topology at Warwick University and he kept a "quiet" eye on the field - all his life - it was often possible to catch him looking guilty photocopying algebraic topology articles. More curious was his ability to ride a unicycle, which apparently also dated from his University days.

He was a great colleague, he had a wonderful sense of the absurd and a great talent for finding ways to make his scepticism amusing and entertaining. He cared a great deal that Stats NZ did the best work we could and he was always willing to help others improve the rigour of the work they had done. He will be sorely missed.

# Back-In-The-Day

by SHIRLEY PLEDGER, EMERITUS PROFESSOR



This example comes from my student days, when I used to spend the summer vacation picking strawberries at a Government-run Horticultural Research Centre near Wellington.

There was a trial testing five varieties of strawberries, one of which (“Redgauntlet”) was grown by the local growers, the others being Californian varieties, not yet tried in New Zealand. The experiment was laid out as a randomised block design, with four blocks of five trial plots. Each plot was a row of thirty plants. Around the edge of the trial were extra plots, called guard rows. These were planted with Redgauntlet. The diagram shows the layout, with guard rows around the edge, and the letters B, L, M, R and S representing the five varieties. R=Redgauntlet and S=Shasta, one of the Californian varieties. The frame outlines the actual trial plots.

Two or three times a week, a gang of pickers would pick the ripe fruit from the plots. Each plot had its own well-labelled box. The strawberries were placed in the appropriate boxes, then taken by tractor and trailer into the shed, for weighing. At the end of the season, the total yield for each trial plot was found.

There were two reasons for planting guard rows around the edge of the trial plots:

- Sometimes a tractor driver would cut the corner, damaging a corner plot. The guard rows protected the trial plots from this fate.
- The Research Officer recognised that pickers were human beings, who were likely to get hot and thirsty working out in the sun. So he told them that they could eat as many strawberries as they liked from the guard rows, but they were not to eat the fruit from the trial plots, because these had to be weighed.

Unfortunately, the Shasta strawberries were known to be far sweeter and more delicious than Redgauntlet. It was very easy for the pickers to nibble Shasta berries unobserved while they were picking that plot. It became very obvious to anyone working in the field that the pickers were all trying to be the ones to pick the Shasta rows. We draw a veil over exactly what was happening in the field, but not many pickers were observed to wander over to the Redgauntlet guard rows for a snack.

At the end of the season, I was involved in adding up the total yields for the various plots. Shasta emerged as a low-yielding variety - but I know, from having picked it, that it really had medium-to-high yields, and it would have been ideal for the New Zealand market. When the trial results were published, the growers decided against Shasta because of its reported low yield. This is a classic example of a biased experiment. Poor Shasta was penalised simply because it tasted so good. When I realised what had happened, I told the Research Officer, who was grateful for the information. He claimed he had thought something fishy had been going on, but he couldn’t work out exactly what. His subsequent variety trials always had the most tempting variety in the guard rows! (But if he had actually been out in the field, working with the poor, hot pickers, he would have detected the problem far sooner.)



Figure: Experiment layout.

# NZSA Awards

by VANESSA CAVE, CONVENOR OF THE AWARDS COMMITTEE



## Call for Nominations

The NZSA recognizes our members' contributions to the New Zealand statistical community through the Campbell, Littlejohn, Worsley and Jean Thompson awards.

The **Campbell Award** is the premier honour bestowed by the NZSA and is awarded in recognition of an individual's contribution to the promotion and development of statistics in New Zealand.

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

The **Worsley Award** recognises outstanding recent published research from a New Zealand statistician in the early stages of their career. In particular, applicants must be within seven years of confirmation of their PhD, or their highest completed degree.

The **Jean Thompson Award** recognizes excellence

in the application of statistics in New Zealand industry, including business, Crown Research Institutes, government agencies and departments, media, etc. The award celebrates the insightful use of statistical thinking and practice in solving practical problems and creating value.

**Nominations for the 2024 awards are currently open!** Nominations (or queries about these awards) should be emailed to Vanessa Cave, Convenor of the NZSA Awards Committee at [vanessa.cave@auckland.ac.nz](mailto:vanessa.cave@auckland.ac.nz). **The closing date for nominations is Sunday 10th November.**

Congratulations to the 2023 winners: Alain Vandal (Littlejohn Award), Xun Xiao (Worsley Award) and Neil Cox (Jean Thompson Award). Their citations can be found in the previous newsletter [previous newsletter](#).

## Conference Travel Grants for Students and Early-Career Researchers

Heads up! In October, a call for applications for Student Travel Awards, and the recently established Early Career Researchers Travel Fund, will be made.

# Student and Early Career Statisticians' Network

by MUKSAAN



I am pleased to take up the role of National Representative for the Student and Early Career Statisticians network. I am trying to keep engaging the statistics community in New Zealand with the statistics community in Australia. I have been working closely with the Statistical Society of Australia (SSA) on organising monthly joint webinars. We have had our first webinar in June on "Adventures

in Statistics and Genetics: a brief history of the methods in Animal Breeding" by Roy Costilla and the second one in July on "Are Statisticians Sufficiently Engaged with Public Policy?" by Dennis Trewin AO FASSA.

Looking ahead, we are planning to host our joint student and early career conference in November this year. This event will be hosted at local hubs in Perth, WA; Hobart, Tasmania; and Christchurch, New Zealand, as well as a livestream option. For more updates, [click here](#).

## NZSA Mentoring Program

by LISA THOMASEN



### Cohort 3

Cohort 3 of the NZSA Mentoring Program is currently in full swing. This year's program includes:

- 30 participants, including 16 mentors & 17 mentees
- 15 mentoring pairs & 1 mentoring group
- 3 people involved as both mentors and mentees

Pairings were communicated throughout the month of March, with the program kick off and meet & greet sessions for mentors and mentees being held in April. 8 mentees and 10 mentors attended these sessions which were a great opportunity for meeting others in the program and discussing tips for getting started. Mid-point check-ins were held for both mentors and mentees in June. The program will formally conclude in September, followed by close-out sessions in October and a close-out survey. Feedback from the

close-out sessions and survey will be used to refine the program for Cohort 4 which will be offered in 2025.

### Lunch 'n' Learn Sessions

A selection of lunch 'n' learn sessions have been offered to give NZSA members an opportunity to network and discuss relevant topics. The first lunch 'n' learn session was held in February and focused on Professional Development. Discussion focused on the balance of technical vs soft skills and how to prioritise development with a busy workload. The second lunch 'n' learn session was held in March on the topic of Giving & Receiving Feedback. This session was attended by 18 NZSA members and included lots of thought-provoking discussion including the impact of cultural differences on feedback. The third session, Work-Life-Mum Balance, was held in May, targeted at NZSA members who are Mums. Elena Moltchanova's lunch 'n' learn session on Finding Confidence as a Statistician was originally scheduled for March but was rescheduled to August. Members at various career stages had the opportunity to share aspects of their roles where they had lacked confidence. This was followed by an interactive discussion

on ways to mitigate these challenges. There was knowing laughter when we discussed the challenge of interacting with stakeholders who use journal articles with suboptimal statistics as evidence to support their suggested approach. It seems most statisticians can share a story where the stakeholder has pushed for numerous t-tests instead of an ANOVA!

### **Lean In Circle**

Lean In Circles are small groups which connect regularly for peer-to-peer mentoring, networking and support. This year a Lean In Circle aimed at women in the NZSA was set up with the purpose of expanding networks, building connections and creating future opportunities for self-selection of mentoring groups where an initial connection has already been established. We currently have 10 women involved in this year's circle. After an introduction session in February, we have been connecting virtually for an hour per month. Topics covered in these sessions have included:

Anxiety in the Workplace, Comfort Zones, Work Life Balance, and Advocacy vs Enquiry. This circle has been a great opportunity to share experiences, challenges, and learnings with others in a supportive environment. The discussions have prompted self-reflection and we've all learnt things about ourselves and each other throughout these sessions.

### **Get Involved!**

If you're keen to be involved in the NZSA Mentoring Program, you don't need to wait until 2025.

- Attend one of the upcoming lunch 'n' learn sessions
- Offer to facilitate a discussion topic for an upcoming lunch 'n' learn or
- Help out with the organisation of the program

If you're keen to get involved, or have some good ideas, please email me: [mentoring@stats.org.nz](mailto:mentoring@stats.org.nz)



# Statistics Education Research

by MAXINE PFANNKUCH AND MIKE CAMDEN



## The Refreshed Curriculum is Reviewed

In November 2023, the Ministry of Education released the refreshed curriculum for mathematics and statistics. The Education Committee had plenty of input to the statistics and probability parts, and we saw the results as up-to-date for the changing data world.

In December 2023, The Minister of Education established a Ministerial Advisory Group (MAG) "to review drafts of the refreshed English and maths learning areas in the New Zealand Curriculum" ([link](#)). We noted that the 12 people in this MAG included zero people with expertise in statistical education. Our NZSA president wrote to the Minister (29/2/24), saying that that MAG did not have "statistics education evidence-based research expertise", and that we had expertise, international contacts, and a history of contributing to curriculum development. The letter concluded with: "The NZSA strongly recommends that at least one statistics education research expert is included in the MAG. We would be happy to recommend experts for your consideration."

We received a ministerial reply (26/6/24) that recognised our inputs, proposed future consultation with us, but did otherwise not answer our recommendation for statistical expertise. By then the MAG had finished their report and been disbanded, and replaced with six writing groups. The maths and stats writing group consists of six Ministry people with maths and stats experience, and a MAG reviewer.

The MAG's Initial Report, from March 2024, appeared in June ([link](#)). A revised version, for Year 0 to 8 only, was released in August and the

committee is working towards a response. The maths and stats curriculum for Year 0 to 8 will be "available for feedback use" by schools from Term 4 2024, and "required" from Term 1 2025. For the curriculum for Year 9 to 13, the plan is: drafts Term 4 2024, consultation 2025, required 2026.

## Further interests of the Education Committee

The next NZAMT conference, Everybody Counts, Tēnā Tatau Katoa, is in Ōtepoti Dunedin, 1-3 July 2025 ([link](#)). We plan to help it have a strong statistical component. Nowadays, software tools can assist students, from Primary onwards, to do their statistical thinking. We hope to assist teachers in making sure that the statistical thinking drives the use of the tools, and not the other way around. The Trends in International Mathematics and Science Study, TIMMS 2019, showed that NZ students scored very well in the domain that TIMMS calls "Data and Probability" ([link](#)). TIMMS 2023 is due out in December this year. The new NCEA Level 2 is delayed until 2028, but the separate subject Statistics in there will have a large footprint. Students will have pathways into the maths and stats that they will really need in their lives.

## Probability | Tūponotanga - A Guide for Teaching Probability

The NZSA education committee's proposal to produce a digital book as a guide for teachers to support the teaching and learning of tūponotanga | probability in Aotearoa New Zealand schools has now gained financial support from NZSA and NZAMT. Pip Arnold is leading the project. The book will have 15 chapters authored by members of the NZSA education committee, other NZ educators, and international experts. The book will align with the new refreshed mathematics and statistics curriculum. The aim is to have two chapters of the guide available by the end of 2024, with the other chapters available by the end of 2025 for teachers to use as a resource for the new curriculum.

## CensusAtSchool Project

The **CensusAtSchool** project, under the co-direction of Rachel Cunliffe and Anne Patel, are now preparing for the 2025 online biennial census for Year 3-13 students. Currently over 47,343 students from 760 schools across the nation have participated in the 2023 census, the largest uptake since the project began in 2003. Pip Arnold is the curator and developer of resources, for which she is now leading a new initiative of teacher and Tūturu collaborations for developing new resources and updating the resources and website to align with the new curriculum.

## Teacher Professional Development

### *AMA Saturday Morning Workshops*

The AMA has continued with its online **Saturday Morning** workshops, resulting in teachers from across New Zealand registering. In June 2024, Anna Fergusson, Auckland University, presented a workshop on “Embracing creativity through explorations in probability and modelling.” Pip Arnold presented her CensusAtSchool work in conjunction with Tūturu, school health education providers, Dr Jenny Robertson and Kim Gotlieb. They used responses from senior students on their online and alcohol attitudes as well as other CensusAtSchool responses, to develop and trial curriculum health-based statistical investigations, which included students suggesting proposed actions based on the statistical evidence. The NZSA was a much-appreciated sponsor of the IASE Conference, specifically for sponsoring the keynote session featuring Andrew Sporle.

*AMA/NZAMT seminars* Stephanie Budgett arranged for Hollylynne Lee, NC State University, USA, to give a Zoom seminar in July 2024 to teachers on “Designing to Support Doing Data Science and Statistics in Schools.” Hollylynne is internationally recognised for her innovative online professional development modules for teachers. Another visitor, Rochelle Tractenberg, Georgetown University, Washington DC, an internationally recognised expert on ethical

statistics and data science practice also gave a Zoom workshop on “Integrating ethical reasoning and content into statistics and data science courses” to teachers in July 2024.

*IASE Seminars* The International Association for Statistical Education has its series of **IASE Webinars**, organised by Pip Arnold, and some featuring our members, like Anna Fergusson, who will present in October 2024. Topics, like climate change, teaching risk ideas, AI, and coding for statistics, are very relevant to the changing data world.

*Statistics Education Conference Involvement* A very successful **IASE Roundtable** conference was held in Auckland at the beginning of July 2024. Anna Fergusson led the local organising team, along with Pip Arnold, Stephanie Budgett, Anne Patel and Matt Parry. Anna Fergusson, Anne Patel, Rachel Passmore and Malia Puloka, Auckland University, presented papers and Pip Arnold presented a workshop on CensusAtSchool. ICME-15 was held in Sydney in July 2024, with Anna, Malia, Heti Afimeimounga, Amy Renelle, Stephanie, and Pip giving presentations. Other upcoming conferences with IASE involvement are: SRTL-14 at Penn State, USA in June 2025; the World Statistics Congress in The Hague, Netherlands in October 2025; the IASE Satellite Conference in Muenster, Germany in October 2025; and the ICOTS-12 conference in Brisbane in July 2026, for which Stephanie Budgett is the IPC Chair.



IASE Roundtable conference attendees at Auckland University

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# Local News

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## Foodstuffs

by MAZEN KASSIS



At Foodies, we are currently exploring new ways to improve performance of our Supply Chain team using data. One of our latest initiatives focuses on integrating and analysing supply chain data – data related to our distribution centre (e.g., inventory levels and stock movements) and transport fleet (e.g., delivery schedules, transport costs) – by using generative AI and natural language processing (NLP).

Historically, supply chain data existed in separate systems, making comprehensive analysis more manual than it ought to be. By integrating relevant datasets, we want to create a unified platform that provides a complete view of our supply chain operations. A key feature of the proof-of-concept approach we are working on is the use of natural language processing (NLP), allowing our Supply Chain analysts to interact with the complex datasets using plain language, instead of the usual data queries. This simplifies data access and enables our team to make informed decisions more quickly and efficiently.

The solution we are exploring also enables real-time data visualisations, which enables our analysts to create graphs, heatmaps,

and dashboards on-the-fly. This enables the identification of trends and bottlenecks, and potentially forecasts future needs with greater accuracy. The features are crucial for scenario planning and risk management.

This work is aimed at enhancing our decision-making processes. In a world where we can track the entire journey of our products from suppliers to delivery this has the potential to improve operational efficiency, save costs, and help us improve service levels for our stores and, ultimately, for our customers.

As this project is currently a proof of concept, we are developing it ‘under the radar’ and assessing its potential benefits. Looking ahead, we hope to expand the use of more advanced data approaches, like AI, in areas beyond supply chain. One of my main goals with this work is to get better at ‘leading’ the use of data and analytics to drive better outcomes for the business. We can’t reasonably expect an average ‘analyst’, let alone non-technical people in the organisation, to understand and apply things like AI to what they’re doing. The more of this sort of leadership we can show, to empower others to get better outcomes for themselves, the more value we’re likely to be seen as driving for our Co-op.

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## Luma Analytics

by OLIVER STEVENSON



We are thrilled to share some exciting updates about our growing team and recent accomplishments at Luma Analytics. Firstly, we are delighted to welcome Martinette van Gruenen, Alex Osier, and Andy Plunkett to the team. Martinette joins us from Xero, Alex from North Carolina where he was working for General Motors, while Andy has returned home to New Zealand after a stint in Melbourne. No doubt the team will learn plenty from the diverse experiences across fintech, banking, and the automotive industries, that Martinette, Alex, and Andy bring. With these recent hires, our team size has crossed the 20-person threshold, which according to MBIE now classifies us as a "Medium Sized" business. An exciting milestone to achieve as Luma celebrates its 6th birthday!

The team has continued to grow our portfolio of modelling projects across a variety of industries, which lately have included media, broadcasting,

and banking. Of particular interest has been a recent project which modelled the risk posed to residential and commercial properties in New Zealand by potential flooding events over the next 50 years. Using geo-spatial modelling techniques, the team were able to come up with an innovative method that allows us to quantify risk posed to individual properties, across a range of possible climate scenarios. It's always a rewarding experience to be working on projects that allow us to grow and explore our technical capabilities, while developing solutions that can be applied to areas of social interest, such as climate change.

Finally, ensuring we stay abreast of industry advancements, our team has been actively attending conferences and events in what is a rapidly growing and ever-changing field to work in. With the current focus on Generative AI, it has been fascinating to hear how some of New Zealand's leading companies are leveraging these new technologies and to consider how we can do the same.

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## Statistics Research Associates

by ROBERT DAVIES



The previous newsletter introduced John Maindonald's book on "A Practical Guide to Data Analysis Using R". We are pleased to announce it is published and available. If you're interested, but you would like to see

some of the material first: the draft of the first three chapters is available on website <https://jhmaindonald.github.io/PGRcode>. We also offer you the opportunity to order it with a 20% discount: go to the Cambridge University Press [website](#) and enter the code PRAGDAR24 at the checkout.



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## Biostatistics Centre on Dunedin Campus, University of Otago

by ANDREW GRAY



It has been a very big few months for the Centre since the last column. Our Director, Professor Robin Turner, became the Head of Department for Preventive and Social Medicine (PSM) in Dunedin. We're all very happy that Robin's talents as a leader have been recognised in this way and that a larger group of people will now benefit from her positive and empathetic approach to leadership. At the same time, some of us will miss the 'mum jokes' at our staff meetings and the ample supply of M&Ms (an essential teaching tool for biostatistics!) Fortunately, Robin will remain in the Centre for half of her time, so we will still have plenty of contact with the founder of our Centre (and her famous puns and chocolate stash).

Research Associate Professor Claire Cameron has become the new Director of the Biostatistics Centre. We are all delighted for Claire, and also delighted that she will be the one guiding us into the next phase of our Centre's history. Claire has a long history of building biostatistical connections and networks (locally, nationally, and internationally) and of working to improve the environment for emerging biostatisticians. The Centre is in excellent hands, and we are all excited to see where the future takes us under Claire's leadership.

At the same time, the Biostatistics Centre has moved back into PSM, completing our cycle from PSM, to the Dunedin School of Medicine's Dean's Department, to the Division of Health Sciences' PVC's office, and now back to PSM. Throughout this time, I've worked in the exact same office (next to Research Associate Professor Ari Samaranayaka) and with many of the same collaborators. I am now planning a move to an office one floor below, beside Dr Ella Iosua. This will increase the chances of people meeting larger groups of biostatisticians on the ground floor of the Adams Building, and so facilitate

our ongoing investigation into collective nouns for biostatisticians. We're all delighted to have returned to PSM, where most of us started our careers as biostatisticians, while keeping our identity as the Biostatistics Centre.

Robin, Claire, Ella, Ari, and I picked up teaching HASC413 (Introduction to Biostatistics) while Dr Jimmy Zeng was away on research and study leave. We enjoyed meeting the students in this important course and helping them to develop their understanding of and appreciation for biostatistics in research.

As you can see, we haven't had to say goodbye to Robin, and most of us walk past her office every day, but we did have to farewell Research Associate Professor Jill Haszard, and I wish her well in her new and exciting venture. We were thrilled that Dr Brett Maclennan has been appointed as a lecturer in biostatistics in PSM and we're enjoying him being part of our supportive community of biostatisticians. We have also been joined by a new administrator, Janet Kim, who has quickly adapted to her new environment and is constantly impressing us with her talents.

As you can see, we have had more than our average number of changes recently, and I will hope for a regression to the mean going forward.

As a particularly notable progression, we were all delighted to get together after work to watch Research Professor James Stanley's Inaugural Professorial Lecture on June 19 with Claire, Ella, Ari, Robin, Dr Nisa Widyastuti, myself, and others enjoying this fantastic blend of autobiography and biostatistics. If you missed the event, I highly recommend you search YouTube for James' [IPL](#).

Normally, I would suggest that you check X/Twitter to see the other things that I haven't mentioned here, but we've been too busy to post much there lately. One of the many ways that Janet is impressing us is in working to add a 'news' section to our webpage, and I'll hope to be able to include the URL for that in the next column!

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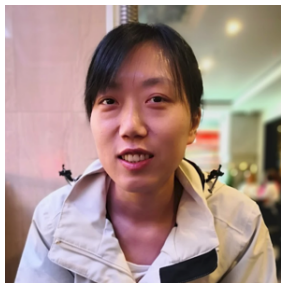
# Department of Mathematical Sciences, Auckland University of Technology

by PATRICIO MATURANA-RUSSEL



We are pleased to welcome Dr Shu (Susan) Su, Dr Yiming Ma, Dr Hamed Fatoyinbo, and Dr Ryan (Ho Leung) Ip to our Analytics team at the Department of Mathematical Sciences at AUT.

Shu has joined us as a Lecturer. Before joining AUT, Shu was a lecturer in the School of Applied Business at Unitec. Shu achieved her Master of Analytics and PhD in Applied Mathematics from Auckland University of Technology. Currently, she is teaching mathematics and blockchain technology courses to both undergraduate and postgraduate students. Her research focused on mathematical modelling in finance to explore the dynamic nature of uncertainty within financial systems. Additionally, she is eager to apply artificial intelligence and blockchain technology to tackle challenges in business operations and enhance decision-making processes.



*Dr Shu Su*



*Dr Yiming Ma*



*Dr Hamed Fatoyinbo*



*Dr Ryan Ip*

Yiming has joined us as a Lecturer. Yiming earned his bachelor's and master's degrees in China before teaching experimental courses in Geophysics at East China University of

Technology. In 2018, he began his PhD studies in Applied Mathematics and Statistics at the University of Otago under the supervision of Dr Fabien Montiel and Associate Professor Ting Wang. After completing his PhD study in 2022, he joined Stats NZ in the unit of Methods & Design until he joined our team at AUT. Yiming's research specializes in earthquake modelling and change-point detection in time series.

Hamed has joined us a Lecturer. Hamed joined Massey University, Palmerston North, as a Graduate Assistant and PhD student in 2017. Following the completion of his PhD in 2021, he undertook a Marsden Postdoctoral Fellowship with Associate Professor David Simpson. After a year, he transitioned to a postdoctoral fellowship at Epicentre within the School of Veterinary Science at Massey University, where he worked on an infectious diseases project funded by the Ministry for Primary Industries. In March 2024, Hamed joined our team. He employs various mathematical techniques, including bifurcation theory, to analyse models of electrophysiological activities, with a particular emphasis on muscle cells. His expertise extends to statistical analysis and data analytics, applying these methods to enhance the understanding of complex biological systems. He is interested in a wide range of applications of dynamical systems theory to the physical and life sciences and is open to collaborations.

Ryan has joined us a Senior Lecturer. Ryan completed his BSc (with First Class Honours) and PhD at the University of Hong Kong in 2010 and 2015, respectively. Ryan's research interests include spatio-temporal statistics, spatial statistics, ordinal data analysis, decision forests and all kinds of applications of statistics in various disciplines. In addition, Ryan has extensive experience in providing statistical consultancy. Before joining AUT, Ryan was a Senior Lecturer in Statistics at the Charles Sturt University in Australia.



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## Department of Statistics, University of Auckland

by PRIYA PARMAR



Our May graduation featured 191 statistics graduands; congratulations to our PhD grads Pei Luo and Yixuan Liu as well as the Department's 2023 appointed Professional Teaching Fellow: Liza Bolton.

The success of the Data Science programme has become increasingly evident with 80 graduating with postgraduate qualifications; 47 Master of Data Science, 24 Master of Professional Studies (specialising in Data Science), 4 PGDip, 5 BSc(Hons). Foundation statistics remains strong with 101 BSc and 18 BSc conjoint graduating.

David Smith donned a sequined hat to host a special statistics edition of "Deal or No Deal" for primary school children attending the Incredible Science event held on campus 26th June. Supported by Priya Parmar (with many teaching assistants) a repertoire of statistical games including transformative dice and Anna Fergusson's 'statistics is awesome' were well put to work to recruit future statisticians.

Speaking of last year's PhD graduand and Bevan Werry Speaker awardee; Anna Fergusson chaired the International Association of Statistical Educators (IASE) round table conference hosted by The University of Auckland 2nd – 5th July 2024.

This conference featured plenary speaker Andrew Sporle inciting support for his quest for statistical literacy and data democracy. Presentations, workshops and specialised discussant sessions from international speakers were focussed at exploring creative approaches to support learners with diverse needs, abilities and from under-resourced areas; how to make considerations of socio-political aspects in statistics and data science education; interdisciplinary approaches to engaging in data and data literacy and how to take a humanistic stance in teaching and learning with data.

The Department also hosted several international speakers including Professor Rochelle Tractenberg from Georgetown University speaking on 'engaging in, and teaching, ethical practice of statistics and data science'; PhD student Robin Muegge from the University of Glasgow discussing 'COVID-19 vaccine fatigue in Scotland: how do the trends in attrition rates for the second and third doses differ by age, sex, and council area'. Assistant Professor Guimaraes DeCastro Amorim from Vanderbilt University Medical Center spoke on 'statistical methods and designs for multi-wave validation studies' whilst Associate Professor Jeffrey Miller of Harvard University gave his presentation on 'reproducible inference and model selection using bagged posteriors'.



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## Plant & Food Research

by DUNCAN HEDDERLEY



In May, Olivia Angelin-Bonnet and Laurie Favre (PFR, post-harvest team) visited INRAE's Fruit Biology and Pathology (BFP) unit in Bordeaux, France. Within BFP, the META team specialises in the statistical and mathematical modelling of plant metabolism. During this visit, they met with modellers from this team, to learn about genome-scale metabolic modelling, which uses flux balance analysis to simulate the flux of metabolites within an organism at steady state. The team also presented their approach to predictive modelling of plant phenotype from metabolomics data, using machine learning techniques. Olivia and Laurie will be able to apply these skills to PFR problematics. In return, Olivia presented her newly released R package, **moiraine**, for the construction of multi-omics integration analysis pipelines. This was a very successful exchange, which hopefully marks the beginning of a fruitful collaboration. Importantly, the trip also involved a lot of cheese degustation!



*Reblochon fondue with charcuterie.*

Maryam Alavi, Joanna Sharp, Heather Jenkins, and Linley Jesson are shifting their focus toward the theoretical side of the data and computational science spectrum. The Applied Mathematics team shares the core values and objectives of PFR Data Science with the group and is a key partner to the Statistical Science and Data Applications teams. They also partner with the bioinformatics teams, especially Anand Rampadarath, in mathematical biology, and continue collaboration with the System Modelling team and modellers in various domains of science across PFR.

The Applied Mathematics team aims to make complex mathematical concepts accessible and comprehensible for domain experts to expand capabilities to ambitious R&D, that otherwise are limited due to data availability or feasible repeatability. The team's expertise allows for the development of mathematical models for process control and automation, simulation modelling, complex optimisation in the multi-dimensional space of science, industry, and market, signal reconstruction from abrupt or blurry observations, and methodologies for long-term predictions through narrow windows of empirical data.



*The Water Mirror, Place de la Bourse, Bordeaux.*

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# AgResearch

by HAROLD HENDERSON

Congratulations Ken Dodds, FRSNZ



*Ken Dodds.*

Congratulations to Ken Dodds, AgResearch, being elected as a Fellow of the Academy of the Royal Society Te Apārangi in April ([link](#)).

Ken Dodds is a leader in statistics and bioinformatics. Globally, he is known for developing and implementing statistical tools for genetics and breeding, especially in livestock. He

led the mapping of genes for major international projects on livestock species when genetic maps had only been achieved in humans or inbred populations. Ken has been a global leader in combining new statistical tools with genetic analysis. These tools are used in breeding programmes for diverse species across the globe, as well in conservation of endangered species. His leadership of methodology and software allowed genomic regions in livestock to be associated with diverse production traits. Recently, he led the development of statistical tools for the application of low-cost DNA sequencing for genetic improvement.

“It’s nice recognition that the work I do is seen as high quality; I’ve always wanted my work to be applicable and of a high academic quality,” he says.

Ken says he’s grateful to all his AgResearch colleagues over the years for their support, notably Shannon Clarke and John McEwan who he has worked with closely on the Genotyping by Sequencing (GBS) project over the past 10 years.