

NZFSSRC Industry Futures Forum, 12 March 2024

Artificial Intelligence, Machine Learning and Data Science

DRAFT AGENDA for sharing as at 5 Feb.

- When:** Tuesday 12 March 2024
- Time:** 9.00 am – 4.30 pm Presentations
4.30 – 6.30 pm Networking with drinks and nibbles
- Where:** Miramar Golf Club Parking free
1 Stewart Duff Drive
Wellington 6022
Walking distance from Wellington airport terminal
- Video Conferencing** <Zoom link>
- Registration:** **In Person:**
\$150 for affiliate and non-members
\$75 for IAG full members, students
- Online:**
\$100 for affiliate and non-members
\$50 for IAG full members, students
No charge for Speakers

Why should you attend this event?

When asked “*Why should food safety professionals learn about machine learning and AI for food safety?*” ChatGPT responded with 10 reasons. They all centred on using advanced data analytics to avoid or mitigate food safety problems, assist with compliance reporting, and improve food safety decision-making. Artificial intelligence (AI) and machine learning (ML) are catch-all terms for a wide range of powerful tools being applied in different ways. Some food businesses are already exploring or using these tools. Others are yet to investigate where such tools could benefit their business. And what are the risks?

This event brings together speakers who will explain the basics of AI and ML and share examples of how these tools are being applied to supercharge data analytics and support decision-making.

The purpose of this futures forum is to prompt you to think about the needs and opportunities for your business. You can connect in person with AI and ML experts, so that you will leave this event inspired to explore new ideas or ways of working and get a better understanding of where these tools could take us into the future.

Facilitator: Dr Scott Champion (Primary Purpose) www.primarypurpose.co.nz

Time	Activity	Purpose/Title	Speaker
9.00	Assemble: Tea, Coffee, Water available		
9.30	Welcome & introductions	Karakia Welcome participants and outline the purpose of the Industry Futures Forum. Facilitator to outline the agenda	TBC Denver McGregor (IAG Chair) Scott Champion housekeeping Other (TBC)
9.50		Big Data, Digitalization and AI-Driven Solutions in Food Safety	John Donaghy, Nestlé (online)
10.50		Emerging trends and Applications in Artificial Intelligence	Grant Dick University of Otago
11.20		Navigating the technology jungle – an epidemiologist’s journey into data science	Petra Muellner, Epi Interactive
11.50	MORNING TEA		
12.10	Cultural Session		
12.10		Cultural aspects to AI and data (Speaker and title TBC)	
12.30		Google speaker Christopher (Chris) Mende; or colleague in Palmerston North	Details to be confirmed
12.50-1.45	Lunch		
1.45-2.30	Research partners examples in practice		3 x 15 min presentations from research partners
	Research talk 1	Use of social media to investigate foodborne disease patterns: A comparative analysis of the New Zealand and Australian messages on Twitter	Mariza G Reis AgResearch
	Research talk 2	Revolutionising Food Safety with AI and Digital Twins: Opportunities and Challenges	Alvaro Orsi ESR
	Research talk 3	Getting lost in the forest: the pitfalls of high dimensional genomic data in random forest classifiers.	Jonathan Marshall Massey University
2.45-3.30	Industry & Regulator session		3 x 15 min talks
	Industry 1	From overalls to Lab coats – the future of meat inspection (15 mins)	Matt Scott AsureQuality
	Industry 2	Fonterra R&D experiences in data analytics for Food Safety & Quality and the rapidly evolving world of genAI	Steve Taylor Fonterra
	Regulator	Using data to support decision-making: insights and future potential	Claire McDonald, MPI-New Zealand Food Safety
3.30	Short break (15mins) set up panel		
3.45-4.30	Panel	<i>Facilitated panel discussion on AI / ML / Data and what we have learned today</i>	45 mins
4.30pm	Meeting ends, sum up & Karakia		Scott / Libby Karakia TBC
4.30 – 6.00	Networking session; drinks & nibbles		

Short biographies of speakers:

John Donaghy, Nestlé

Head of Food Safety, Corporate Quality, Nestlé, Switzerland.

Holds Responsibility for Food Safety in Global Operations. This includes oversight of HACCP, food safety microbiology, industrial hygiene, prerequisite programs and allergen management programs. Leads a global team of food safety experts, overseeing implementation of key Nestlé Food Safety and Quality standards, at Market and factory level.

Previously worked as Senior Food Safety Microbiologist in Nestlé R&D, represents Nestlé on International Commission on Microbiological Specifications of Food (ICMSF), other Codex Observer groups and several food safety advisory stakeholder groups.

Prior to joining Nestlé, worked as Project Leader in food safety microbiology at Agri-Food & Biosciences Institute (AFBI), N. Ireland, on food safety projects funded by National Government, Food Industry and European Union. Previously, worked as Head of Government Scientific Services Laboratory.

Grant Dick (University of Otago)

Associate Professor Grant Dick is the current Head of School in the School of Computing at the University of Otago.

Following an initial career in software development, he pursued an academic career focusing on artificial intelligence and data science methods. He actively teaches into the University's data science and machine learning offerings, and co-developed the BSc in Data Science introduced by the University in 2019.

His main research achievements are in the theory of AI methods, particularly in the area of Evolutionary Computation (an AI technique that mimics systems of biological evolution). More recently, his focus is on the application of AI and Data Science in aquaculture, with a particular focus on applications in salmon farming and health indicators (funded as part of the MBIE SSIF Data Science Platform).

Grant also has an active interest in emerging "generative" artificial intelligence methods (such as those underpinning ChatGPT) both from a technical and ethical perspective.

Petra Muellner (Epi Interactive)

Dr Petra Muellner is Director of Epi-interactive, a New Zealand-based B-Corp, that aims to empower research and one health through open-source data science and IT infrastructure.

Petra's work drives to connect data and information with people by a) augmenting science and data analytics with technology and b) closing critical gaps at the critical cross-section of disciplines. Epi-interactive provides services to a wide range of clients, including both NZ and Australian government and industries, global organisations such as WHO, and frequently collaborates with research groups and universities.

Next to her role with Epi-interactive Petra holds an adjunct position at Massey University, is the past Head Examiner (Epidemiology) of the ANZCVS and has been working as an independent international consultant for many years, primarily for FAO's headquarter in Rome.

Māori speaker (TBC)

Alvaro Gomes Orsi (ESR)

Alvaro Orsi is a Data Science Lead who has vast experience leveraging AI and advanced analytics to produce insights-driven solutions across scientific and business domains. Holding a PhD in Computational Cosmology from Durham University (UK), Alvaro currently leads a team of data scientists, analysts and software engineers applying AI and advanced analytics in the public health, forensics and primary industries sectors. Central to his team's mission is the development of AI-powered solutions that are ethically defensible, transparent, and responsibly deployed, setting the gold standard for the industry.

Mariza G Reis (AgResearch)

Mariza Gomes Reis holds a PhD degree in Organic Chemistry at the University of Campinas (Brazil). She is a senior scientist at AgResearch in the Smart Foods and Bioproducts group. Her research interests include the development and optimization analytical methods, chemical modification of waste products and the use of predictive modelling approaches within food systems. Mariza leads an objective of AgResearch Food Integrity programme aiming to develop fast methodologies for monitoring food quality/safety as well as investigate the value of online data for food systems.

Jonathan Marshall (Massey University)

Jonathan Marshall is a mathematical statistician at Massey University with expertise in statistical models of disease at the interface of human and animal health such as identifying potential outbreak clusters and attributing human cases to their

likely source. Jonathan has extensive experience in multidisciplinary research programmes with funding from government (HRC, MBIE), and industry (MIA, PIANZ, Fonterra).

Matt Scott (AsureQuality-AQ)

Matt joined AQ's newly formed Innovation and Insights team in August 2022 as the Innovation Leader. In this role he facilitates collaborative innovation among AQ's internal business units and external customers, charting a course towards the future of food assurance and iteratively experimenting to get there. In September 2023 Matt presented to the 9th UNESCO Asia Pacific Futures Network conference in Kuala Lumpur about how AQ has used Futures Thinking with 100 Meat Inspection plant supervisors to start experimenting with the integration of Artificial Intelligence in meat inspection processes.

Steve Taylor (Fonterra)

Steve has worked in Fonterra's R&D centre for 30 years, mainly in protein ingredient development and applications for nutritional benefit. Initially as a researcher, then project management, followed by leading teams of scientists. He has had a deep involvement in everything from fundamental research, technology development, new ingredient development, customer partnerships, and R&D business strategy. His current role focusses on how Fonterra R&D can be done differently, including exploiting developments in generative AI, Machine Learning, and data analytics.

Steve grew up on a dairy farm in Northland, trained in bioprocess engineering at Massey University, completed a PhD in Chemical Engineering at Cambridge University, and later completed an MBA at Massey University.

Claire McDonald: (MPI-NZFS)

Claire has worked at the Ministry for Primary Industries (MPI) since 2013 and manages the MPI Operational Research Programme which funds projects in biosecurity, food safety and animal welfare. Claire also led the statistical work for the MPI Mānuka Honey Science Programme which developed an export regulatory definition for mānuka honey. She continues to lead work on science and research activities involving honey and the apiculture industry and providing statistical advice on food safety science projects led by New Zealand Food Safety. Prior to working at MPI, Claire was a statistical ecologist leading statistical design and analyses of projects focussed on understanding changes in natural environments across the UK and Europe.

Panel (TBC)

Useful resources & explainers:

[Māori Data Governance Model](#)

[Artificial intelligence | Prime Minister's Chief Science Advisor \(pmcsa.ac.nz\)](#)

[AI to Z: all the terms you need to know to keep up in the AI hype age \(theconversation.com\)](#)

[Mana-Raraunga-Data-Sovereignty-web-V1.pdf \(royalsociety.org.nz\)](#)