THE ROYAL AUSTRALIAN AND NEW ZEALAND COLLEGE OF RADIOLOGISTS
PRESENTS

INTELLIGENCE18

AI IN HEALTHCARE

The Royal Australian and New Zealand College of Radiologists

Intelligence 18 will be a one day Summit filled with panel discussions, plenary sessions, breakout streams and plenty of opportunity for you to connect with service providers and AI professionals. Below is a jam-packed schedule of what you will experience.

7:00am - 9:00am Registrations Open

7:30am – 8:45am Breakfast Session
Beyond Superhuman, Technology for Humanity
Doctor Jordan Nguyen, Inventor, Futurist and Biomedical Engineer
With today's staggering advances in technology, many new possibilities are emerging which almost seem to have come straight out of the realms of sci-fi fantasy. When we connect some of the dots between various cutting-edge fields, the innovations become even more intriguing. In this presentation, Biomedical engineer Dr Jordan Nguyen will raise an incredibly interesting and perhaps confronting conversation around links drawn between the fields of artificial intelligence, virtual reality, new techniques in 3D human scanning, neuroscience, and the ideas of human consciousness. This topic raises a number of questions about what it is to be human and what is a moral approach to the incredible things we can achieve today with the latest advancements in technology – advancements that are increasingly blurring the lines between the virtual world and the real world.

9:00am - 9:05am Welcome Address *Doctor Lance Lawler, President, RANZCR*

9:05am – 9:40am Opening Plenary Session - Combined session
AI in Healthcare – Hype and Reality
Professor Hugh Bradlow, President Australian Academy Technology and Engineering
Artificial Intelligence promises dramatic changes in every sphere of human endeavour and healthcare is no exception. However, a misunderstanding of AI is leading to over-hyped expectations which could lead to disillusionment if not managed carefully. This presentation will demystify the technologies behind Artificial Intelligence so that the audience can make informed decisions about its applicability to their own circumstances. It will specifically separate the hype from the reality. It will then examine examples of the opportunities that AI presents for transforming healthcare and how it is like to change not only the diagnosis and treatment of patients, but also the structure of the industry itself.

9:40am - 10:20am Plenary Session – Combined session
Solving AI's Privacy Problem
Assistant Profoessor Yves-Alexandre de Montjoye, Lecturer Academy of London (UK)
We're living at a time when information about most of our movements and actions are collected in real time and used by machine learning algorithms. Large-scale datasets dramatically increase our capacity to measure and understand individuals and collectives for good. The collection and use of this data, however, raise legitimate privacy and ethical concerns. In this talk, Yves-Alexandre will discuss how traditional data protection mechanisms fail to protect people's privacy in the age of big data. He will also present solutions that, moving forward, will allow us to use data at scale while truly protecting people's privacy.

10:20am - 10:30am Question & Answer **with** ***Professor Hugh Bradlow, President Australian Academy of Technology and Engineering*** **and** ***Assistant Professor Yves-Alexandre de Montjoye, Lecturer Academy of London (UK)***
Before breaking for morning tea, we will have an opportunity to take advantage of the high calibre of leadership with a chance to have two-three questions asked and discussed between Prof Bradlow and Assist. Prof de Montjoye.

10:30am – 11:00am Morning Tea

11:00am – 12:30pm Breakout Stream One Government, Policy and Ethics (2 x 45 min sessions)

Session 1 - An update on Australia's National Digital Health Strategy

Professor Meredith Makeham, Chief Medical Officer, Australian Digital Health Agency

Australian Digital Health Agency Chief Medical Adviser Professor Meredith Makeham will discuss the Agency's work to improve health outcomes for all Australians through the delivery of digital healthcare systems, and through the implementation of Australia's National Digital Health Strategy – Safe, Seamless, and Secure: evolving health and care to meet the needs of modern Australia. The strategy is the product of detailed consultation and co-production with patients, consumers and carers – and the healthcare professionals, industry, organisations and innovators who serve them. It draws on evidence of clinical and economic benefit from many sources within Australia and overseas.

Professor Makeham will also discuss the Agency's work as the System Operator of My Health Record, which is currently being expanded using an opt-out participation model for all Australians, unless they choose not to have one. A key Agency priority is the connection of pathology and diagnostic imaging services to My Health Record. This will support healthcare providers in accessing information they need to make better informed clinical decisions with their patients. Professor Makeham will also discuss the evidence of broader benefits of the My Health Record system for people and the healthcare system, and the evaluation approach at the Australian Digital Health Agency to the measurement of these benefits.

Session 2 - Adopting and trusting AI through Standards

Dr Jed Horner, Policy Manager, Standards Australia

AI continues to push the boundaries of what's possible. It elicits excitement, fear, hope and uncertainty. There is a timely discussion taking place on the role of regulation and ethical frameworks in shaping our response to AI, including at a national level, but what role can, and should, standards play? This presentation will provide a background on what Australian and International Standards are, how they currently work for citizen-consumers in the broader healthcare arena and what role they might play in establishing a common framework for managing the impact of AI, so that its full benefits can be realised.

11:00am – 12:30pm Breakout Stream Two Big Data and Deep Learning (2 x 45 min sessions)

Session 1 - The Impact of Artificial Intelligence in Medicine & Healthcare: What will our jobs look like in 2040?

Dr Johan Verjans - Deputy Director, Centre for Medical Machine Learning, Australian Institute for Machine Learning

The task of image recognition seems a natural fit for deep learning, in particular medical images. Piles and piles of data will be analysed, day and night. Will radiologists be replaced, will they be more efficient, will they need to get new skills? The story seems more complicated.

Session 2 - **GEHC Command Centres – the intersection of human and artificial intelligence**

Ms Mandy Forster, Regional Leader, GE Healthcare Partners

Hospitals must operate in a regulated environment, ensure that patients realise the best outcomes in the shortest time possible, strive to improve patient experience and prevent adverse event. An aging population is putting additional stress on hospitals already struggling to meet demand; those operating near full capacity are facing longer wait times for admissions, which hampers care and the overall patient experience. The GE Healthcare Command Centres offers health care services a customised solution to optimise operations and improve efficiency through the use of advanced technologies in partnership with the wisdom and experience of their valuable workforce.

12:30pm – 14:00pm Extended Lunch Break

12:45pm – 13:30pm Lunch Panel Discussion Presented by *GE Healthcare*
Taking advantage of an extended lunch, this panel discussion will provide an opportunity to hear from experts within AI in Healthcare and the measured conversations that need to be factored around policy, security, framework and ethics. Collect your lunch from the Expo area and head into the ballroom for this exciting discussion.

Moderated by ***Mr Matt Tucker***, CEO & President, GE Healthcare

Panellists include:
- **Doctor Olivier Salvado**, Head of Imaging and Computer Vision, Data61 (CSIRO)
- **Doctor Raghav Murali-Ganesh**, FRANZCR, Co-Founder & President of CancerAid
- **Clinical Adjunct Professor Stacy Goergen,** FRANZCR, Director of Research at Monash Imaging

14:00pm – 15:30pm Breakout Stream One Government, Policy and Ethics (2 x 45 min sessions)
Session 1 - A presentation with *Shane Porter, Assistant Secretary, Health Analytics Branch, Health Economics and Research Division, Australian Government, Department of Health*
The Department of Health uses a range of analytics on administrative datasets to enhance policy decision making. These projects are diverse and cover a wide range of methods, including using visualisation tools to make analytics more accessible, clustering techniques to group similar patient journeys and the use of artificial neural networks to conceptually embed medical codes. This presentation will cover these projects and also touch on the future directions of the Department in using advanced machine learning and artificial intelligence techniques on different datasets.

Session 2 - Healthcare and Google Cloud, The journey towards an AI first approach
Win Woo, Solutions Architect, Google Cloud
Google Cloud's goal for healthcare is reflective of Google's overall mission: to organise the world's information and make it universally accessible and useful. Applying this mission to healthcare means using open standards to enable data sharing and interactive collaboration on a secure platform. Ultimately, we hope that better flow of data will inspire new discoveries with artificial intelligence (AI) and machine learning (ML), leading to insights that improve patient outcomes. In this session you will learn more about Google AI's research in healthcare and biosciences, with a focus on medical imaging. Beyond the research, we will explore the technology requirements for scaling digital health capabilities and how cloud is uniquely placed to solve these challenges. Building on cloud services for secure patient data management, we will explore practical AI examples for radiology using Google Cloud technologies.

14:00pm – 15:30pm Breakout Stream Two Big Data and Deep Learning (2 x 45 min sessions)
Session 1 - Why artificial intelligence has not revolutionised healthcare… yet
Dr Olivier Salvado, Head of Imaging and Computer Vision, Data61 (CSIRO)
The amount of medical data is fast increasing through new technological development that can scan our body with ever more resolution, measure rapidly metabolites from body fluid, or identify our genetics code at a cost low enough to be considered for routine examination. AI technologies, and more specifically Machine Learning, are well suited for the task of identifying patterns in those vast databases to screen and diagnose diseases, prevent errors, or improve the productivity of our health system. Yet, the deployment of AI technologies for health is lagging other areas while some recent drawbacks have been reported in the press. Medical applications present particular challenges for AI and this talk will describe a few of those as well as recent advances to address them.

Session 2 - AI and the diagnostic pathway of tomorrow and what is being done today.
Doctor Elliott Smith, CEO, Maxwell Plus
AI has become a headline in many areas of medicine including radiology. It has become a popular area of both research and has led to the founding of many companies. Messages in the media span from a dismissal of AI to worries about the future of clinical jobs. Elliot will discuss the ways AI may play a role in the diagnostic pathway of tomorrow and what is being done today. The talk will explore where AI misses the mark and the need for continuous clinical engagement in the development of AI for medicine and ultimately the spaces where clinicians and AI will compliment each other to improve patient outcomes.

15:30pm – 16:00pm Afternoon Tea

16:00pm – 17:30pm Closing Plenary and Panel Discussion – combined – Presented by Siemens Healthineers
In this combined plenary session, Professor Enrico Coiera will deliver a summary of the many discussions that have taken place at Intelligence18, before being joined by a panel of experts to unpack what's next for AI in the healthcare sector and where the immediate focus should be in the future. Plenty of opportunity will be provided for questions from the audience.

Moderated by:
Professor Enrico Coiera, ***Faculty of Medicine and Health Sciences, Macquarie University, NSW***
In this combined plenary session, Professor Enrico Coiera will deliver a summary of the many discussions that have taken place at Intelligence18, before being joined by a panel of experts to unpack what's next for AI in the healthcare sector and where the immediate focus should be in the future. Plenty of opportunity will be provided for questions from the audience.

Panellists include:
- Doctor Benjamin Schmitt, Product Manager for AI & Digital Archiving, Siemens Healthineers
- **Doctor Luke Oakden-Rayner**, FRANZCR, University of Adelaide
- **Ms Natalia Vukolova**, CEO, The Royal Australian and New Zealand College of Radiologists

17:30pm – 19:30pm Networking Drinks Presented by Macquarie Bank

7.5 RANZCR CPD points can be claimed for attendance at the Intelligence18, AI Healthcare Summit.

*Please note this program is subject to change.