



# CIAIRI Open Day 5 April 2022



**Immerse yourself in AI for a day**

Join us for showcases, workshops, demonstrations from Ethics in AI to Autonomous Systems, Computer Vision, Digital Twin and Mixed Reality.

**Register now**

## CIAIRI Open Day Program Tuesday April 5<sup>th</sup> Storey Hall

Time & Track	Speaker	Tech Talk Details
10 am-10.15	Opening - CIAIRI Intro – Prof. Juerg von Kaenel – Centre Director	
<b>Learning Technologies</b>	Dr. Minyi Li	Preference elicitation & Learning
	Dr. Haytham Fayek	Beyond Supervised Deep Learning
	Dr. Hoang Ha	Data-efficient Active Testing of Machine Learning Algorithms
	A/Prof Jeff Chan	AI in Prescriptive Analytics
11.00-11.20	Harm Ellens <b>Live Person</b>	Building Bots with Empathy
11.20- 11.40	<b>Coffee Break</b> and Demos (sponsored by <b>LIVEPERSON</b> )	
11.40-12:00 <b>Computer Vision</b>	Prof Adrian Dyer	AI lessons from the brain of the bee.
	Dr. Azadeh Alavi	Artificial Intelligence in Health
12.00- 12.30	David Siroky & Aruna Kolluru <b>Dell Technologies</b>	Driving Human Progress with Next Gen AI
12.30- 1.45	<b>Lunch Break</b> (sponsored by <b>DELL</b> )	
1.45- 2.30 <b>Mixed Reality</b>	Prof Fabio Zambetta	AI+Mixed Reality: The future of Computer-Human Interaction
	Dr. Iman Abbasnejad	SCONEGAN for synthetic data generation using an AI model.
	Dr. Ian Peake	The use of AR/VR for nursing students at RMIT
	Dr. Troy Innocent	Urban Play: 64 Ways of Being in the Future Play Lab
2.30- 3.00	<b>Coffee Break</b> and Demos (sponsored by <b>LIVEPERSON</b> )	
3.00-3.45 <b>Agent Based Decision Making</b>	Prof. John Thangarajah	Why did the AI chicken cross the road? : A case for cognitive agents
	Dr. Rick Evertsz	Designing Intelligent Autonomous Systems with TDF
	Dr. Dharendra Singh	Keeping us safe: AI for bushfire risk & planning safe evacuations
	A/Prof Julie Porteous	Interactive Storytelling
3.45-4.30 <b>Ethics in AI</b>	Ethics Round Table Hosted by Dr Lisa Dethridge guest includes: Justine Lacey- Director, Responsible Innovation Future Science Program CSIRO Matt Sinclair- Global Strategy Director, AI Microsoft	
4.30-5.00	Gary Mancuso <b>NVIDIA with XENON</b>	<b>Getting into the Omniverse</b> Scalable, real-time, and multi-dimensional, the Omniverse delivers powerful tools for simulation and design collaboration.
5.00-6.00 pm	<b>Cocktail</b> (sponsored by <b>NVIDIA</b> )	
<b>Industry Demonstration and Immersive Experiences</b>		
 	Interact with Gig XR HoloPatient - 3D Anatomy and HoloHuman	Virtual Health Delivery with Boston Dynamics Spot anchoring social robotics in Health 

## Thanks to our Sponsors



### About AI Ethics Round Table

Making AI tools for today's business needs

Centre for Industrial AI  
Research and Innovation

AI Ethics Round Table  
Tue 5<sup>th</sup> April 2022  
3.45 – 4.30

Logos: CSIRO, Microsoft, RMIT UNIVERSITY CIAIRI

Speakers:

- MC, Dr Lisa Doehridge, Research Fellow, RMIT
- Justine Lacey, Director, Responsible Innovation, Future Science Platform, CSIRO
- Matt Sinclair, Global Strategy Director AI, Microsoft
- Rita Arrigo, Deputy Director, CIAIRI, RMIT
- Dr Marta Poblet Balcells, School of Business and Law, RMIT

RMIT UNIVERSITY

### More Demonstrations and Immersive Experiences

- Augmented Reality for Aircraft Sustainment
- YepHome & Softbank VR Experience
- Urban Play - 64 Ways of Being
- TDF - A Tool for Intelligent Decision-Making Systems
- VX Lab Mixed Reality Immersion
- Microsoft Mixed Reality with [Lawrence Crumpton](#)
- AI for bushfire risk & planning safe evacuations

### COVID PLAN

RMIT requires all staff, students, and visitors to be fully vaccinated, or have a Medicare approved exemption for COVID-19. By registering to attend this event you agree to confirm your vaccination status and provide evidence when requested on arrival on campus.

Please bring a mask for occasions where distancing cannot be maintained.

## Industry Abstracts

Speaker	Topic	Description
<p><b><u>LIVEPERESON</u></b> <u>Harm Ellens</u></p> 	<p><b>Building Bots with Empathy</b></p>	<p>Conversational AI is the latest and hottest trend in customer experience (CX). Instagram, WhatsApp, Apple, Google, Facebook, WeChat, Viber all enable consumers to message with telecommunications providers, insurers, higher education providers, government agencies, and sporting venues (to name a few). Just like they do with family and friends.</p> <p>Conversational AI in combination with these popular messaging channels extends much further than traditional chat bots. In this presentation, internationally recognised expert Harm Ellens will present a number of case studies from Australian and international organisations who use Conversational AI and messaging to deliver Curiously Human™ automated and AI-assisted experiences. He will illustrate through real-life examples the positive change in the lives of both consumers and employees that Conversational AI is delivering today.</p> <p>Drawing on content from the recent “Bias in AI systems and AI aided decision making” report, and following on from 2022 International Women’s Day theme #BreakTheBias, the presentation will touch on mathematical techniques through which bias in AI can be measured and prevented.</p>
<p><b><u>DELL</u></b> <u>David Siroky</u></p>  <p><u>Aruna Kolluru</u></p> 	<p><b>Driving Human Progress with Next Gen AI</b></p>	<p>In the next five years, the world of AI will look very different. It's changing at a remarkable speed that's only getting faster. Techniques that are cutting-edge now will be obsolete in a few years, while approaches that are still in their infancy today will become mainstream. Let's look at a few of the areas of AI like Digital Twins, Federated Learning, Quantum AI, TinyML, Ethical/ Responsible AI and Conversational AI that will have a significant impact on our lives in the next few years.</p>
<p><b><u>NVIDIA</u></b> <u>Gary Mancuso</u></p> 	<p><b>Getting into the Omniverse</b></p>	<p>Scalable, real-time, and multi-dimensional, the Omniverse delivers powerful tools for simulation and design collaboration. Early applications in engineering, manufacturing and design are now expanding into AI and complex environmental simulations. The Omniverse is just getting started, find out how you can be the author of your own story, creator of a new world.</p>

## Tech Talk Abstracts

Speaker	Category	Topic	Description
<a href="#">Dr. Minyi Li</a> 	Learning Technologies	Preference elicitation and learning	Marketing dreams of perfectly predicting a human's preference for personalised advertising. This probably is the heaviest used area of AI today. But humans are complex and hard to predict – with marketers often frustrating the users versus getting it right. Beyond marketing, any kind of recommender system helping to decide needs to take preferences and current circumstances into account. This talk will explore ways learning human preferences and reasoning to be more effective.
<a href="#">Dr. Haytham Fayek</a> 	Learning Technologies	Beyond Supervised Deep Learning	In many cases large datasets are available, but they are not labelled. Humans can intuitively grasp patterns in the data and learn from it. Traditional machine learning needs labelled data sets to learn from. This talk presents methods of unsupervised learning from unlabelled data on the example of (add real world example used in the talk)
<a href="#">Dr. Huong Ha</a> 	Learning Technologies	Data-efficient Active Testing of Machine Learning Algorithms	Humans build models of the world and make assumptions which they use to make decisions. Computers try to do the same by learning from data, but bias in data or changing circumstances can make the model unreliable or outright false. Asserting the correctness of models is thus an important area. This talk will propose a novel framework of efficiently testing models using only a small amount of labelled data.
<a href="#">A/Prof Jeffrey Chan</a> 	Learning Technologies	AI in Prescriptive Analytics	This talk will discuss prescriptive analytics (decision making), particularly to do with research that combines predictions/machine learning and then optimisation to make the best choice. Industry examples will include energy demand prediction, recommendations, and predictive maintenance.
<a href="#">Dr. Azadeh Alavi</a> 	Computer Vision	Artificial Intelligence in health	Using AI in the health care domain to build diagnostic guides through assertive methods and techniques.
<a href="#">Dr. Adrian Dyer</a> 	Computer Vision	AI lessons from the miniature brain of the bee.	A challenge for AI has been operation in complex natural environments. Bees have a brain of less than 1 million neurons but can solve many complex tasks previously thought to require a human brain. This discussion will include Einstein proposed bees as a model 70 years ago, with modern psychophysics and computer modelling techniques how bees are indeed providing solutions that change our understanding of how to build AI solutions for real world applications.
<a href="#">Prof. Fabio Zambetta</a> 	Mixed Reality	AI+Mixed Reality: The future of Computer-Human Interaction	The talk focuses on how a wide range of AI techniques are going to provide new types of mixed reality interfaces, leading to different kinds of applications. You will see spatial reasoning on a HoloLens and the way computer vision algorithms are used.



<p><a href="#">Dr.Iman Abbasnejad</a></p> 	Mixed Reality	SCONEGAN for synthetically generate more data using an AI model.	SCONEGAN presents an end-to-end image translation, which is shown to be effective for learning to generate realistic and diverse scenery images. Most current image-to-image translation approaches are devised as two mappings: a translation from the source to target domain and another to represent its inverse.
<p><a href="#">Ian Peake</a></p> 	Mixed Reality	The use of AR/VR for nursing students at RMIT	<p>Mixed Reality Highlights include</p> <ul style="list-style-type: none"> <li>- the Virtual Experiences laboratory and its capability</li> <li>- a virtual reality facility model pilot project of RMIT's Healthcare Simulation Facility with Health and Biological Sciences staff and Computing Technologies capstone project students</li> <li>- an augmented reality application for Chemistry</li> <li>- experimentation with experimental virtual reality platforms for digital lab/facilities onboarding</li> </ul>
<p><a href="#">Troy Innocent</a></p> 	Mixed Reality	Urban Play: 64 Ways of Being in the Future Play Lab	Playable cities connect people and place through creative technologies, making the public space of the city itself a platform for play. They call for diverse communities of designers, game developers, scientists, writers, architects, artists, producers, performers, players, bureaucrats and more. Mobile technologies such as augmented reality situate people within new experiences of place and space, allowing us to remake, reimagine and reconnect with the world around us.
<p><a href="#">John Thangarajah</a></p> 	Agent based Decision Making	Why did the AI Chicken Cross the Road? - A case for Cognitive Agents.	Cognitive agents are used to model and implement complex autonomous behaviours. They are built with domain knowledge in-hand and incorporate some essential features such as reactivity, proactivity, flexibility and social ability. A key benefit of this technology is in the way the behaviour of the autonomous system can be explained in terms of cognitive design models, which also makes it a key part of human machine teaming.
<p>Dr.Rick Evertsz</p>	Agent Based Decision Making	Designing Intelligent Autonomous Systems with TDF	The "Tactics Decision Framework" (TDF) allows the building of autonomous decision-making agents that collaborate with humans. TDF allows the specification, reasoning, and coordination to collaborate effectively as a team. This talk will provide an overview of its capabilities and applications.
<p><a href="#">Dr.Dhirendra Singh</a></p> 	Agent Based Decision Making	Keeping us safe: AI for quantifying bushfire risk to communities and planning safe evacuations	Bushfires are part of life for many Australians, and communities and authorities must consider a range of strategies to reduce the risk to lives. This talk will showcase two tools that are being developed with CSIRO's Data61 and in collaboration with the emergency services and local and state governments.
<p><a href="#">A/Prof Julie Porteous</a></p> 	Learning Technologies	Interactive Storytelling	Humans perceive story telling as a creative activity without any patterns. That however is not so there are a few often used story patterns Hollywood uses. Recent AI research has developed storytelling algorithm which learn these patterns and can write novel stories applying these patterns. This talk will present the current state of the art in this area.