

10 examples of AI that are here now and have been embraced by the general public

Responsible AI extends beyond the realm of AI for good initiatives. To me, responsible AI is about the method of designing, deploying and governing AI systems to mitigate unintended consequences while creating value.

Three of the anchor points for responsible AI include ensuring AI systems are compliant with regulations and standards, that they're created and used in alignment with organisational and societal values, and that they're well governed and managed. Australia holds the title of the world's most AI-hesitant nation, and the responsibility to change this outlook lies with those creating and implementing the technology.

This path begins by recognising responsible AI as an indispensable need that not only mitigates risk but also increases citizen trust — especially when co-designed with the customers and communities the system affects.

Stela Solar

Director, National Artificial Intelligence Centre, CSIRO

IN THE RAPIDLY evolving landscape of technology, artificial intelligence (AI) has quietly become an integral part of our daily lives. Once considered a futuristic technology, AI has been embedded into our daily routines for years, seamlessly enhancing accessibility and experiences.

Beyond daily conveniences, AI is playing a crucial role in solving some of the greatest challenges facing Australia. This includes adapting to a changing climate, protecting unique ecosystems, accelerating drug design, and helping cities and towns run as efficiently as possible.

Before we delve into these inspiring examples of everyday AI, let us remember that AI's potential to improve outcomes for business and community can only be realised through responsible and thoughtful design, development and application. It is the mission of the National Artificial Intelligence Centre (NAIC) to work with industry, academia, government and civil society to guide the creation and adoption of AI towards safe and responsible outcomes.

Below are some of the many ways AI has been embraced by Australians.

1. AI in your pocket

When we unlock our phones using facial recognition or fingerprint scanning, that's AI in action. These technologies use sophisticated algorithms to identify and authenticate users.

And it doesn't stop there — AI enables virtual assistants like Siri and Alexa to answer our questions and set reminders, navigation apps to plan the most efficient routes, and social media

platforms to curate personalised content feeds based on what we like or dislike.

2. Let's talk chatbots

Chatbots are powered by AI technologies that allow them to engage in conversations with users. By leveraging natural language processing (NLP) and machine learning, these AI-powered assistants understand user inquiries and respond accordingly. They can answer common questions, are available 24/7, and provide personalised recommendations and solutions.

According to CSIRO's *Australia's AI ecosystem momentum report*, Australian businesses that deploy customer service bots experience an average incremental revenue benefit of \$500,000 per project.⁵

3. Streamlined streaming

Video-streaming platforms are a great example of how AI can create a seamless and intuitive experience. Streaming platforms use machine learning algorithms to analyse vast datasets, identify patterns, make predictions, and continually refine their understanding of user preferences for personalised content suggestions. Some streaming services even use NLP algorithms to understand users' reactions to content to identify preferences.

By identifying which genres, themes and formats resonate with specific user segments, AI also enables studios and production houses to make data-driven decisions when developing new content.

4. Next-gen empowerment

Generative AI technologies have sparked our imaginations and engaged people at a scale never before seen with AI. The surge of new products and services underpinned by this technology is a testament to what human creativity can achieve in a short amount of time with new tools and technologies.

Australians are using generative AI to write content, create reports, analyse trends, build websites, generate ideas and create code. For sole traders and small businesses, generative AI is a revolutionary technology that can scale customer engagement and operations and transform time-intensive tasks into quick actions.

5. Game-changing

From testing its AI-powered predictive analytics platform on a handful of vending machines in Newcastle to counting Coca-Cola, Walmart and Red Bull as clients, HIVERY has successfully harnessed the power of AI.

Founded in 2015, this Sydney-based startup's AI solution generates insights from huge datasets to optimise product management and merchandising, empowering retailers to respond quickly to market trends.

SAM, HIVERY's Space Assortment Manager, can develop a planogram (a visual representation of a store's products or services on display) in several minutes, a process that normally requires 150 steps, numerous staff members and six months of work.

6. Preventing potholes

AI-equipped garbage trucks and council vehicles are identifying potholes, cracks and faded lines on our city streets before they become major problems. Since 2022, councils across Queensland, and now NSW, have been using AI-powered camera technology to conduct real-time street condition reporting before scheduling preventative maintenance work.⁶

Brisbane-based company Retina Vision developed the technology behind these initiatives. It aimed to automate the time-consuming and manual aspects of road maintenance, including gathering data, logging it in the system, and generating and closing out work orders.

This AI-powered approach enables maintenance teams to focus on improving roads, and in turn community safety, leading to significant cost reductions by identifying the need for the repairs early.

7. Keeping an eye out

Health in a Virtual Environment (HIVE) is a remote hospital patient monitoring system that has been assisting on-the-ground doctors and nurses since 2021. Powered by AI, HIVE continuously monitors patients who require close medical observation.⁷

Patients' vitals are analysed, including heart rate, blood pressure and oxygen levels. This data is relayed to a team of clinicians at HIVE's command centre at Royal Perth Hospital. If any anomalies arise, the HIVE team promptly alerts the attending healthcare staff to provide medical care, communicating through a two-way audio-visual unit.

This innovative use of AI technology facilitates swift medical intervention and helps ensure patients receive the best possible care.

8. Helping hands

LYRO Robotics, an Australian startup, has developed an AI-powered solution to help farmers in regional Queensland sort and package fruits and vegetables.

The company's world-leading pattern-packing robot can lift delicate produce like avocados, sweet potatoes and pineapples from conveyor belts and neatly pack them into boxes.

The robot can be fitted into existing operations and installed in less than an hour, helping farmers optimise operating margins, reduce

food wastage, increase efficiency and mitigate labour shortages.

9. Caring for Country

In the wetlands of Kakadu, rangers are using AI and Indigenous Knowledge to care for Country. As Kakadu is one of the largest national parks in Australia, it can be challenging to monitor the environmental health of this precious ecosystem and the wildlife.

But using drones to perform aerial surveillance, take thousands of photos and speedily analyse the images is a game changer for rangers, who would normally perform healthy country maintenance in 40°C heat and 60 per cent humidity.

All the drone monitoring, data analysis and reporting happens through the Healthy Country Dashboard developed by CSIRO, Kakadu Rangers and Microsoft.

This combination of Indigenous Knowledge and AI has already generated positive results. In 2019, rangers reported thousands of magpie geese, who are the markers of healthy wetlands, returning to areas that were once choked by weeds.

10. That's a wrap

Did you know AI is behind some of your favourite movie scenes? In 2021, Adelaide-based Rising Sun Pictures and the Australian Institute for Machine Learning (AIML) used AI to create visual effects for Marvel Studios' *Shang-Chi and the Legend of the Ten Rings*.

Using a 'deepfake' method, the team mapped stunt performers' faces with actors' faces, training each character's machine model with over 30,000 facial images of both stunt performers and actors. This enabled them to more efficiently swap the faces of the two, with 51 swaps needed for six key scenes.

Replacing the traditional use of 2D and 3D face-mapping tools, this new method saves time and money for high-intensity action scenes where stunt doubles are needed.



STELA SOLAR is the Director of the National Artificial Intelligence Centre, hosted by CSIRO's Data61. In this role, Stela is focused on building value for Australian people, businesses and the country, through use of artificial intelligence.

Over the past 15 years, Stela has cultivated expertise in capturing new revenue opportunities presented by emerging technologies and business model transformation.

Stela is passionate about removing barriers to positive technology adoption and engagement. She leverages her broad experiences across business development, strategy, ecosystem development, marketing and product management to inform her insights surrounding cross-organisational factors affecting an organisation's ability to capture an advantage.

Essays

SECTION 1: INTRODUCTION

What is responsible AI anyway?

Professor Jon Whittle – Director, CSIRO's Data61

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Stela Solar – Director, National Artificial Intelligence Centre

SECTION 2: WHAT DO WE NEED TO BE TALKING ABOUT?

A unique opportunity for Australia: bridging the divide between fundamental AI research and usable, embodied AI

Professor Michael Milford FTSE – ARC Laureate Fellow, Joint Director QUT Centre for Robotics

Responsible AI means keeping humans in the loop: what are other social implications of the mainstream adoption of this technology?

Associate Professor Carolyn Semmler School of Psychology, Faculty of Health and Medical Sciences, The University of Adelaide and Lana Tikhomirov – Australian Institute for Machine Learning (AIML), The University of Adelaide

AI is changing the way people work: how do we skill our future workforce to ensure these new jobs stay on shore?

Professor Katrina Falkner FTSE – Executive Dean of the Faculty of Sciences, Engineering and Technology, The University of Adelaide

Responsible data management: a precursor to responsible AI

Dr Rocky Chen, Associate Professor Gianluca Demartini, Professor Guido Zuccon, and Professor Shazia Sadiq FTSE – School of Computer Science and Electrical Engineering, The University of Queensland

Open the pod bay doors please, HAL

Andrew Dettmer – National President, Australian Manufacturing Workers Union

Innovation needs to create value: how do we tool universities to remain relevant to industry needs?

Professor Simon Lucey – Director, Australian Institute for Machine Learning, The University of Adelaide

An AI-literate community will be essential for the continuity of social democracy

Kylie Walker – Chief Executive Officer, Australian Academy of Technological Sciences and Engineering

SECTION 3: WHAT ARE THE NEXT STEPS?

What are the limits of current AI, and what opportunities does this create for Australian research?

Professor Anton van den Hengel FTSE – Director, Centre for Augmented Reasoning, Australian Institute for Machine Learning, The University of Adelaide

Australia's unfair advantage in the new global wave of AI innovation

Professor Mary-Anne Williams FTSE – Michael J Crouch, Chair for Innovation, UNSW Business School

The \$1 billion dollar question: What should Australia's responsible AI future look like?

Kingston AI Group

What are we doing now to ensure that Australia is recognised as a global leader in responsible AI, and what else should we be doing now and into the future?

Dr Ian Opperman FTSE – NSW Government's Chief Data Scientist, Department of Customer Service

For acronyms, abbreviations and endnotes please see the composite document with all the essays.



Responsible AI

Your questions answered

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PROJECT TEAM

Eddie Major, Dr Kathy Nicholson, Peter Derbyshire and Suryodeep Mondal

DESIGN AND PRODUCTION

Elizabeth Geddes, Edwyn Shiell and Alexandra Horvat

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Cover image: An artist's illustration of artificial intelligence (AI). This image represents the boundaries set in place to secure safe, accountable biotechnology. It was created by artist Khyati Trehan as part of the Visualising AI project launched by Google DeepMind. Source: unsplash

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