

Dive into AI, AR & VR!

With CSER & the DTHub

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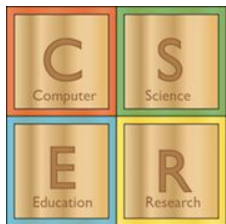


CSER Professional Learning
csermooocs.adelaide.edu.au



**DIGITAL
TECHNOLOGIES
HUB**

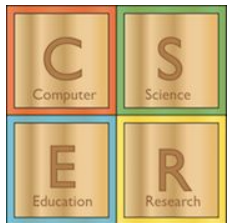
Welcome!





I acknowledge the Traditional Custodians of the land on which we work and live, and recognise their continuing connection to land, water and community. I pay respect to Elders past, present and emerging.

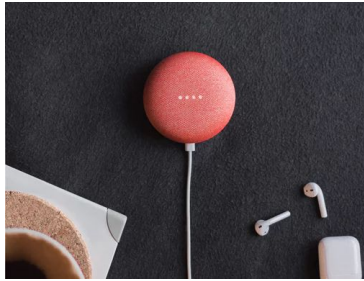
Our session today



**DIGITAL
TECHNOLOGIES
HUB**

- What is VR, AR & AI?
- Classroom equipment
- Classroom activities and assessment
- Tools for content creation
- Further resources & support

Emerging Technologies are changing the way we work, play & live



Virtual assistants



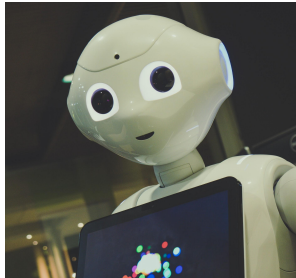
Self-driving vehicles



Virtual experiences



Monitoring & surveillance



Robotics



Virtual & augmented shopping



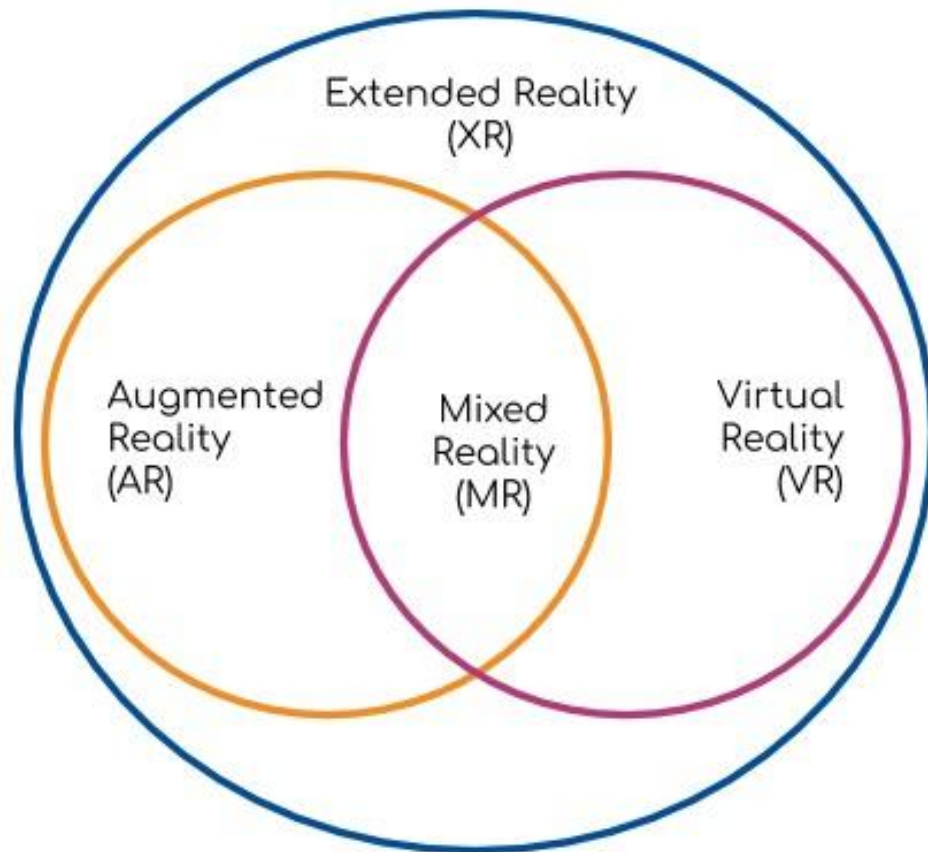
Fun & play



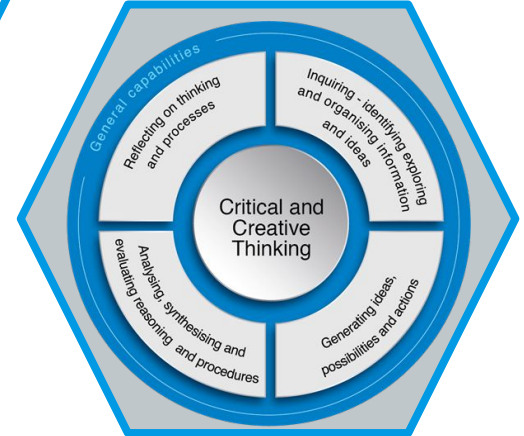
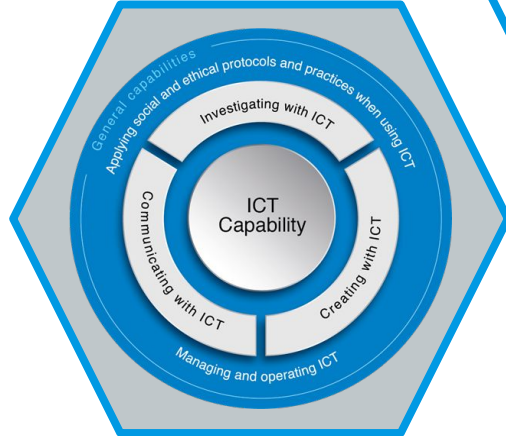
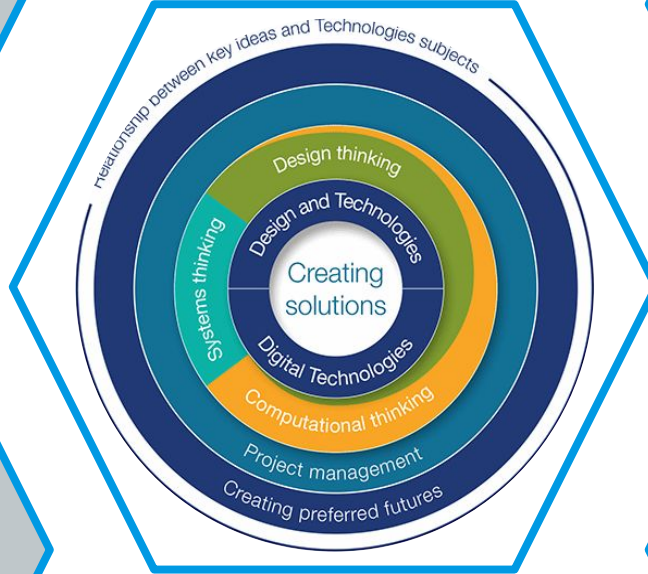
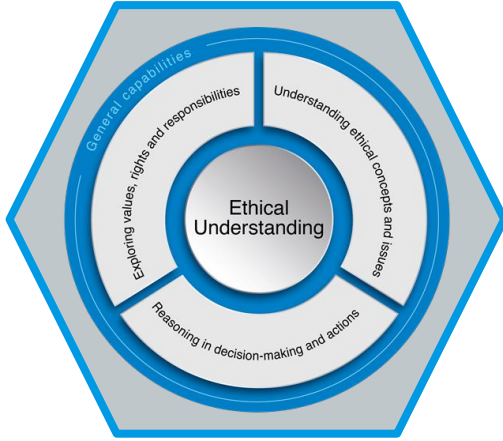
Learning & teaching

Extended Reality (XR)

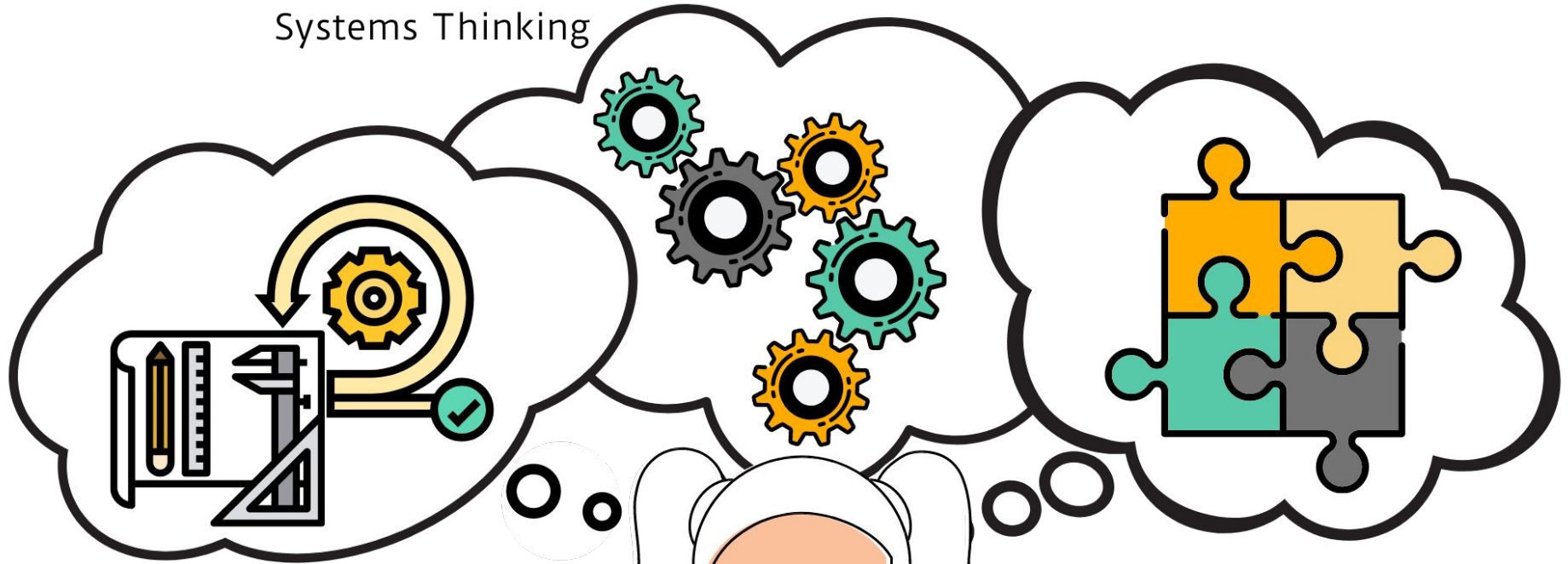
Some AR, VR and MR technologies use Artificial Intelligence (AI) capabilities



KEY CONCEPTS



Systems Thinking



Design Thinking

Computational Thinking



Progression of content

Knowledge and skills are represented as a continuum such as the progression of content descriptions focusing on

information systems.

F-2

Create and organise ideas and information using information systems independently and with others, and share these with known people in safe online environments

3-4

Explain how student solutions and existing information systems meet common personal, school or community needs

5-6

Explain how student solutions and existing information systems are sustainable and meet current and future local community needs

7-8

Evaluate how student solutions and existing information systems meet needs, are innovative, and take account of future risks and sustainability

9-10

Evaluate critically how student solutions and existing information systems and policies, take account of future risks and sustainability and provide opportunities for innovation and enterprise

Virtual Reality (VR)

What is Virtual Reality (VR)?

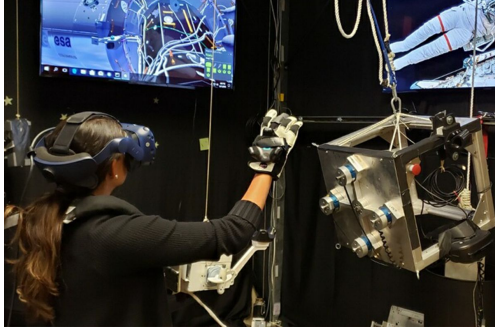
Provides immersive experiences to places and situations that might be otherwise difficult to get to.

360 VR: Allows the user to look in all directions around a simulated environment.

Immersive VR: Simulates a realistic environment in which people can walk around, pick up and interact with objects as well as look around.



VR examples



VR for training (e.g. Astronauts & Firefighters)

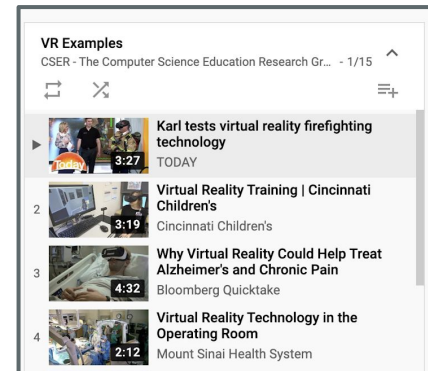


VR for Alzheimer's disease



Google Earth VR

Find examples for your classroom on CSER's YouTube Playlist!
youtube.com/c/cserdigitech/playlists



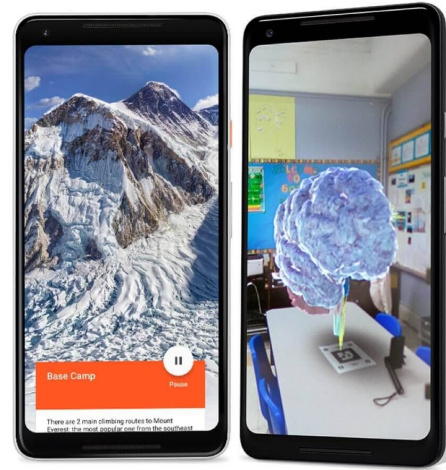
Types of VR Equipment

1. Fully immersive headsets (e.g. Oculus, Lenovo Daydream) with controllers
2. Low-cost headset viewers to use with smartphones (eg. Google Cardboard, Merge Cube Viewer)
3. Viewing via computer, smartphone or tablet in 360 without a headset viewer.



VR experiences in the Classroom

Students can visit locations all around the World or dive into a virtual immersive experience or simulation!

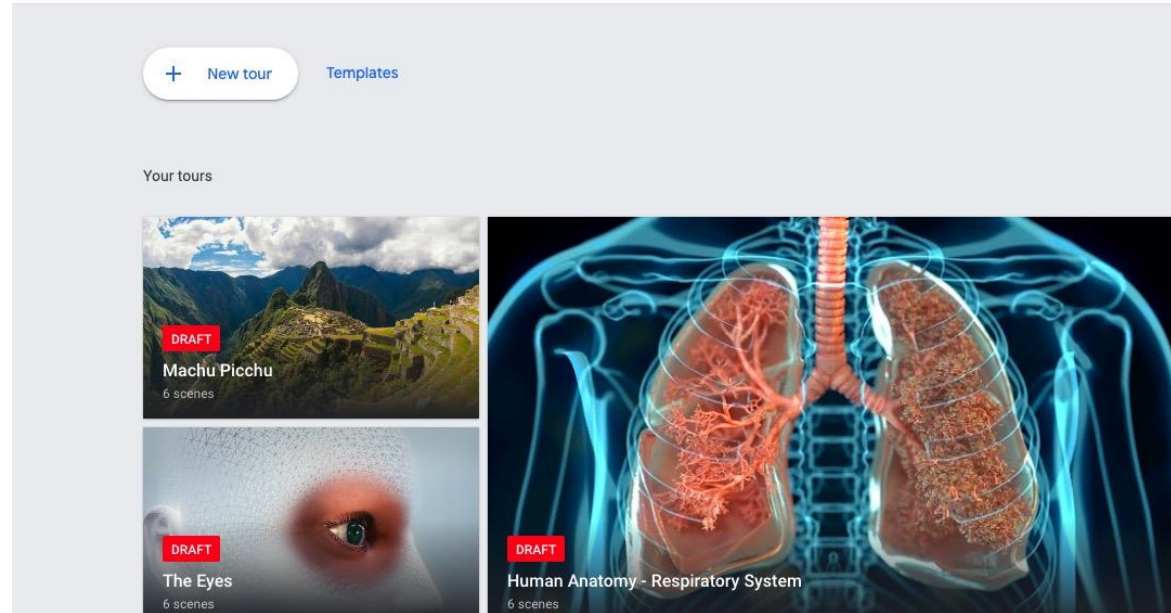


Google Expeditions

VR creation in the Classroom

Students can remix or build their own VR experiences using “Google Tour Creator”.

- Remix existing templates
- Upload 360 content (own or using free sites)
- Use a 360 camera to take images

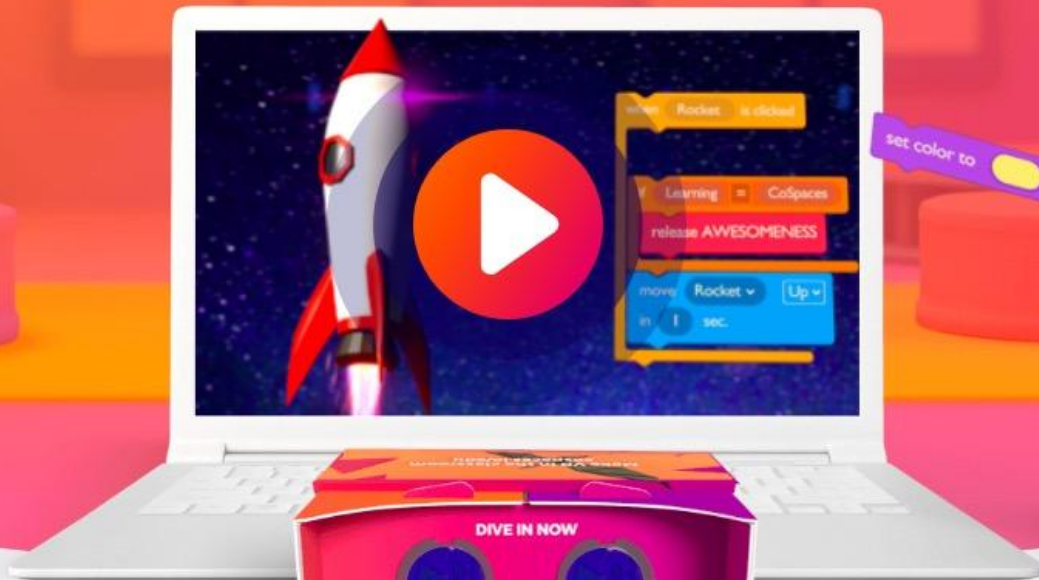


Worldwide Virtual Plate student project

Learn more



Make AR & VR in the classroom



set color to

move Rocket Up in 1 sec

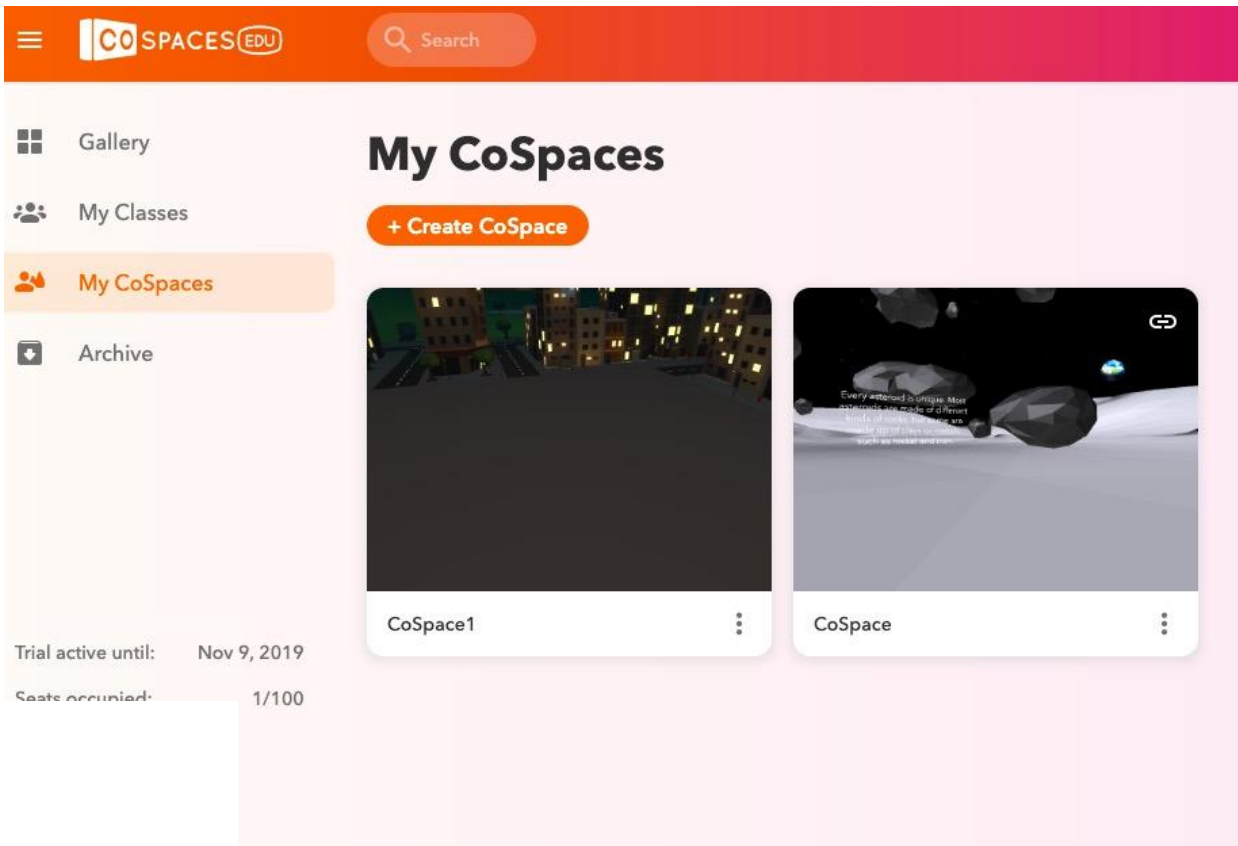


CO SPACES EDU Search

Gallery
My Classes
My CoSpaces
Archive

My CoSpaces

+ Create CoSpace



The screenshot shows the CoSpaces website interface. At the top, there is a navigation bar with the CoSpaces logo and a search bar. Below the navigation bar, there is a sidebar with menu items: Gallery, My Classes, My CoSpaces (highlighted), and Archive. The main content area is titled "My CoSpaces" and features a "+ Create CoSpace" button. Below the button, there are two virtual world thumbnails. The first thumbnail shows a cityscape at night with the caption "CoSpace1". The second thumbnail shows a dark, rocky landscape with the caption "CoSpace". Below the thumbnails, there is a status bar indicating "Trial active until: Nov 9, 2019" and "Seats occupied: 1/100".

CoSpace1

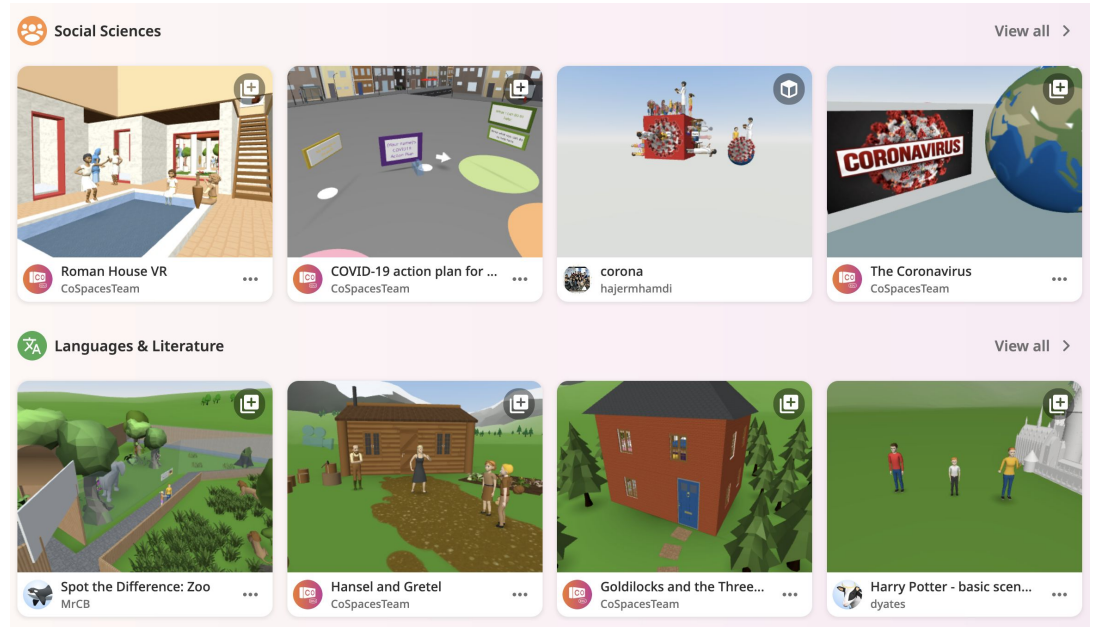
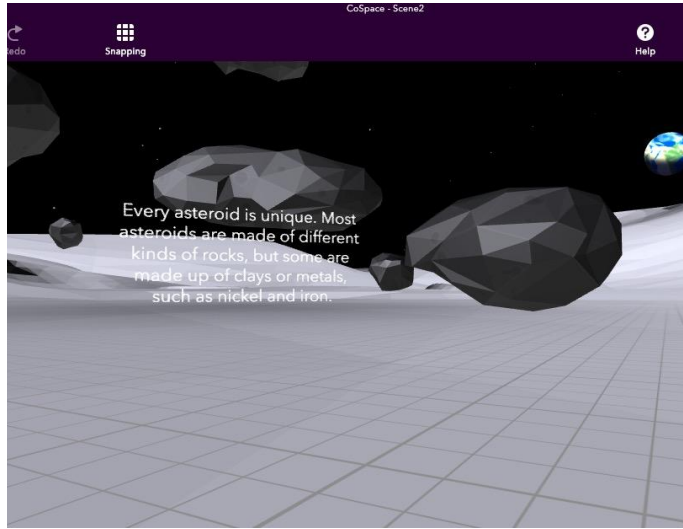
CoSpace

Trial active until: Nov 9, 2019
Seats occupied: 1/100

1. Go to the website and login to your account.
2. Select "Create CoSpace"
3. Practice uploading content into your virtual world.

VR creation in the classroom

Students can build their own VR experiences using CoSpaces, a student-friendly 3D environment authoring tool.



VR creation in the Classroom

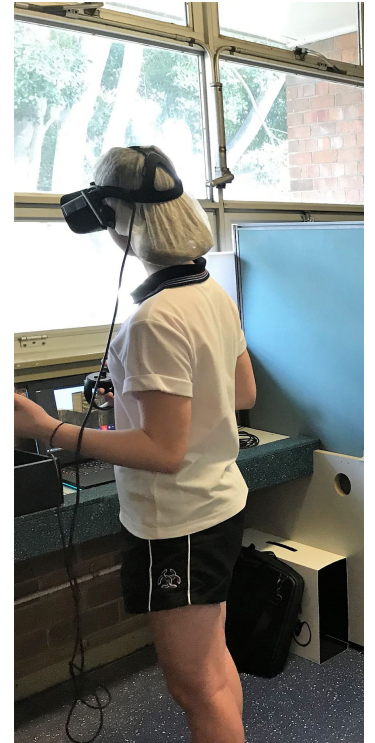
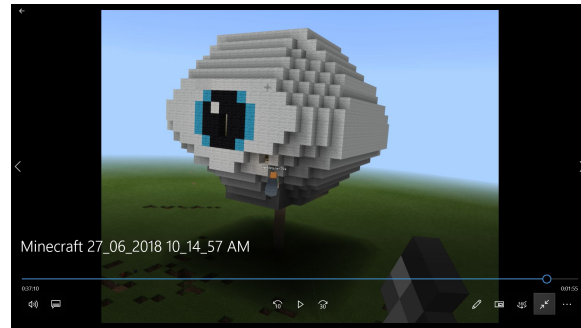


“In groups of three students, create a diorama (3D representation) using Minecraft of some part (organ or organ system) of the human body that is responsible for sensing and responding to the environment (internal or external).”

Callaghan College and The University of Newcastle

Case Study:

digitaltechnologieshub.edu.au/school-leaders/making-a-difference/callaghan-college-vr-school-project



Images: Digital Technologies Hub

VR experiences in the Classroom

Design and plan

Artwork inspiration Van Gogh "Starry Night", 1889



Example vision board for Starry Night Sky



Implement

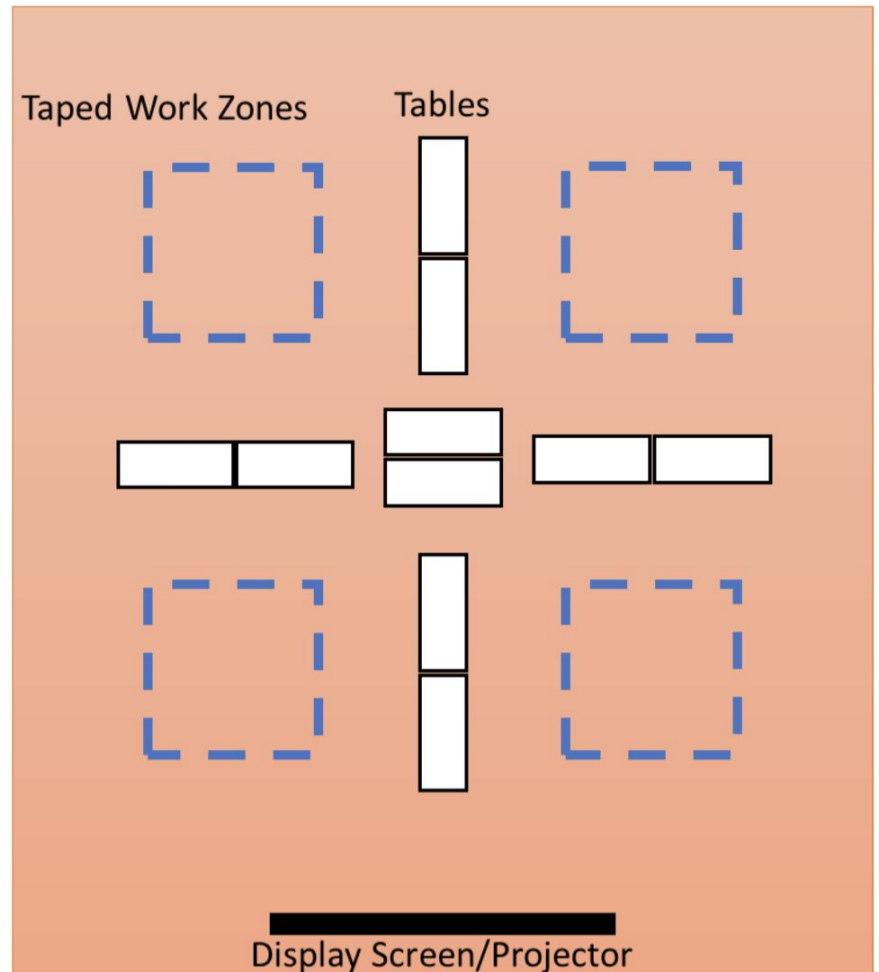


...Reflect & assess

Co-creating content

Students work in teams in a content-creation challenge!

- Create a costume
- Design a future robot
- Create a zoo enclosure
- Design a rescue drone



Augmented Reality (AR)

What is Augmented Reality (AR)?

AR uses the existing environment and **overlays digital information** on top of it. It *augments* our physical world with virtual information.

Graphics, video, sound, touch feedback are added to our natural world through the lens of a digital device (phone, tablet or AR eyewear).



(image source: Vision Australia)

AR examples



AR for Indigenous storytelling

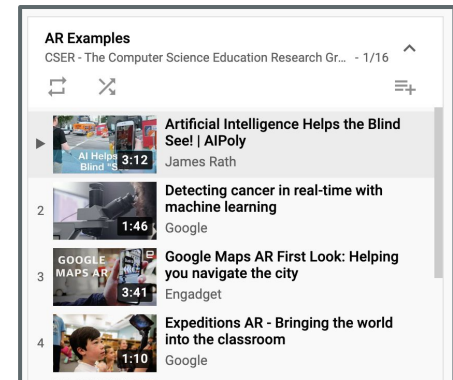


AR in Agriculture



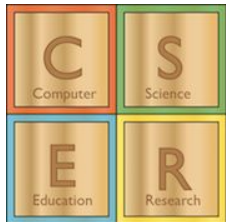
AR to explore space

Find examples for your classroom on CSER's YouTube Playlist!
youtube.com/c/cserdigitech/playlists



AR Equipment

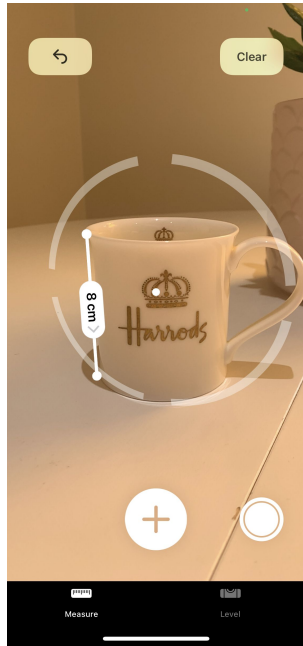
- Digital device (tablet, phone, AR glasses)
- Software application
- (optional) Object that triggers the AR experience.
- (optional) For some content creation you may require a desktop computer.



Wikimedia commons



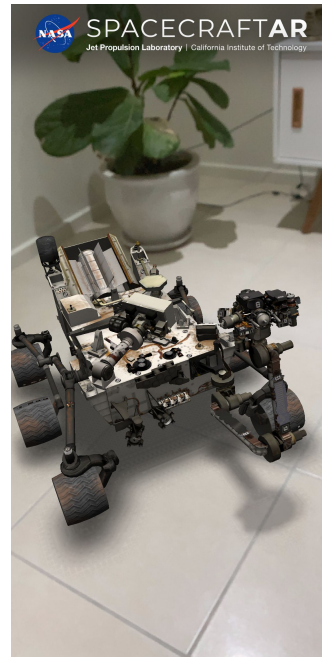
AR experiences in the classroom



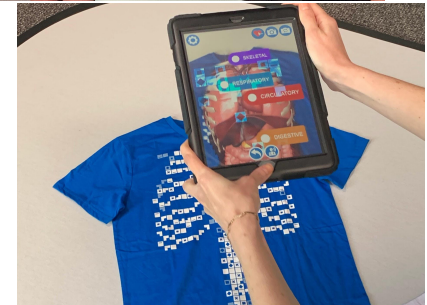
AR measurement tools (e.g. Google Measure)



Navigate space with the help of AR (e.g. Night Sky or Planets)



Explore objects in your room (e.g. NASA Spacecraft 3D)



AR objects that bring content to life (e.g. AR Flash cards or Virtuali-Tee)

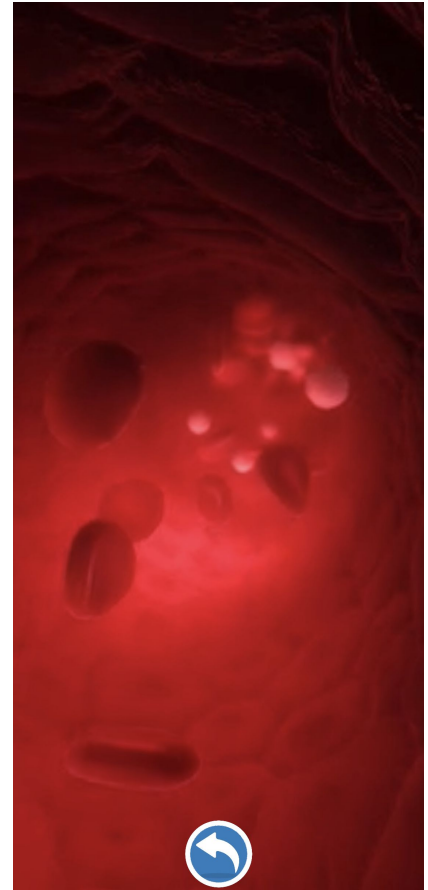
Mixed Reality

Mixed Reality (MR) is a combination of both Virtual Reality (VR) and Augmented Reality (AR).

MR can include Apps that provide augmented digital information, with the option for users to delve deeper through a 360 experience (e.g. Virtuali-tee).



Preview: curiscope.com/pages/virtualitee_preview



Merge Cubes

The Merge Cube lets students hold virtual 3D objects in the palm of their hand, enabling an augmented reality experience of content.

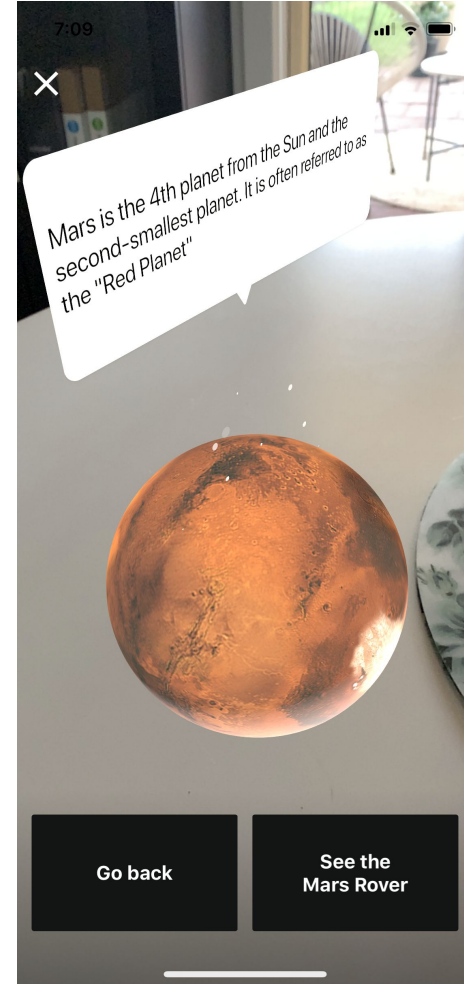
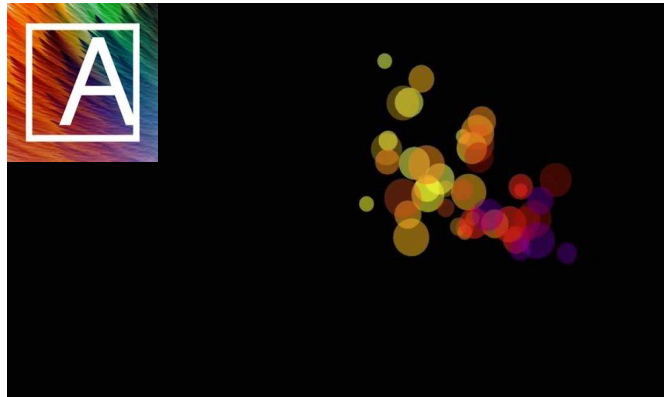
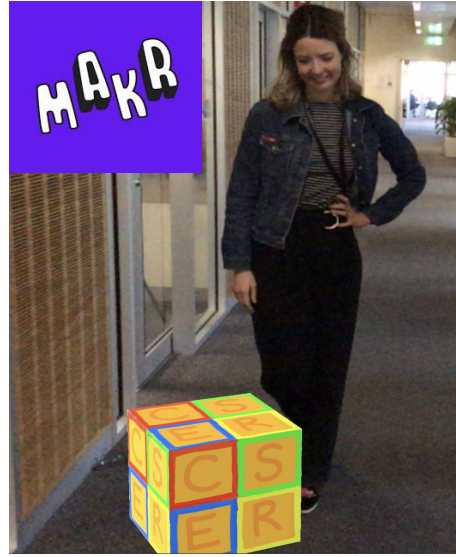
- Many apps available for various learning areas (e.g., Explore App)
- Students can create content for the Merge Cube (e.g., DIG or CoSpaces)

Watch our videos on Merge cube on-demand
[youtube.com/c/cserdigitech/playlists](https://www.youtube.com/c/cserdigitech/playlists)



AR creation in the classroom

- **Metaverse** and **CoSpaces** for creating AR experiences
- **AR MakR** for creating 3D objects
- **Artive** to bring artwork to life with AR
- **Unity** for older students to create 3D objects



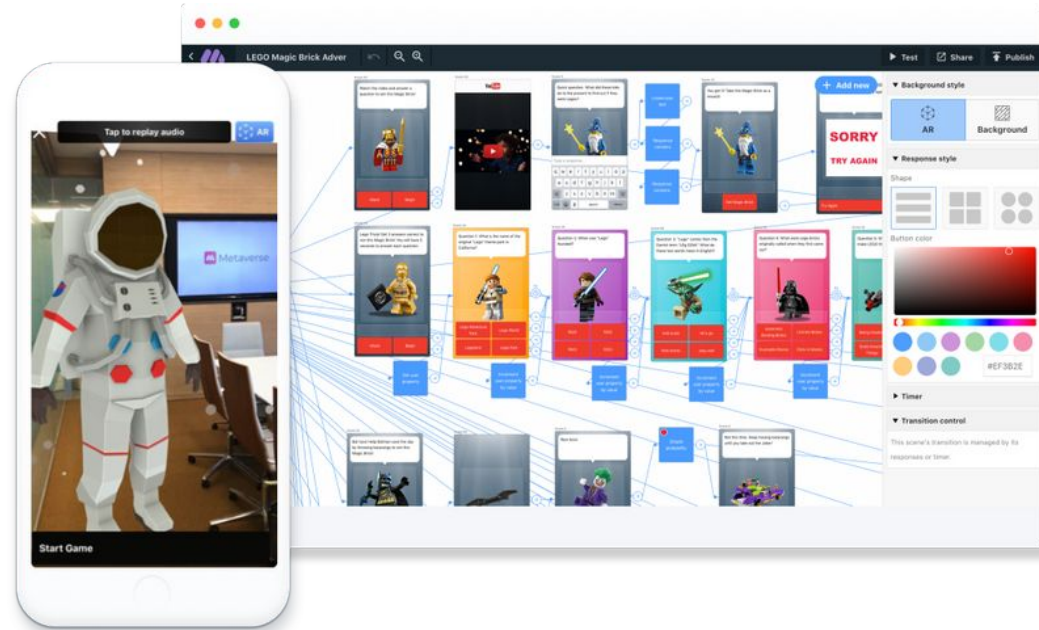


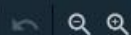
Metaverse

<https://studio.gometa.io>

Create “Experience”

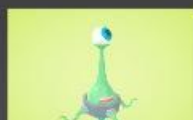
Tip: Use the [free Metaverse tutorials](#) to help you achieve your goals.





home page

I'm looking for a happy human. Can you help me?



Yes, sure!

No

+ Add sound

+ Change background

Take a selfie




is happy

happy outcome


That is a happy human! I can see they are smiling.



Go back to start

not happy outcome

That is not a happy human!



Go back to start

+ Add new

Background style

AR Background

Response style

Shape

Button color

#4f9dfc

Timer

Transition control

This scene's transition is managed by its responses or timer.

+ Add new

▼ Background style



AR



Background

▼ Response style

Shape



Button color



#4f9dfc

▶ Timer

▼ Transition control

This scene's transition is managed by its responses or timer.

Share experience



METaverse APP

General

ADVANCED

<> SDK Embed



Searching for a happy human

CSER Example for training.

Scan the code with your phone to open this experience



Share Link

<https://mtvrs.io/RewardingParallelDogwoodClubgall>



Studio Link

<https://studio.gometa.io/discover/me/5a053653-291a-4e8a-a020-61b376fe9e33>

Go back to start

home page

I'm looking for a happy human. Can you help me?

Yes, sure!

No

🔊 Add sound

🎨 Change background



happy welcome

That is a happy human! I can see they are smiling.

Go back to start

Artificial Intelligence (AI)

What is Artificial Intelligence?



The creation of machines to mimic human capabilities.

Teaching a machine to “see” (recognise objects in an image).

Teaching a machine to “read” and “listen” (interpret and analyse text and sounds).

... solve problems autonomously without explicit guidance from a human being.

What is Machine Learning?

The process of achieving Artificial Intelligence.

In Machine Learning, we teach the machine by training with lots and lots of examples.

Sometimes millions and even billions of data!



Used an AI... today, this week, this month?

Used a virtual assistant?

Had spam blocked from your email?

Used predicted text while sending an SMS?

Had a YouTube clip recommended by the system?

Had search terms suggested in a Google search?

Translated a language by speaking into an app?

Chatted online to a chatbot for product information?

Used thumbprint or iris scan to unlock your smartphone?

Had your photo tagged on a social media site?

AI relies on data



Sound



Images



Text



Sensory data



Fields of AI to solve problems and develop solutions...

See, move & sense

Computer Vision

e.g. self-driving cars, medical scans, social media filters,

Listen, read & respond

Natural Language Processing

e.g. Virtual assistants, spam filters, chatbots, Google search

Think & recommend

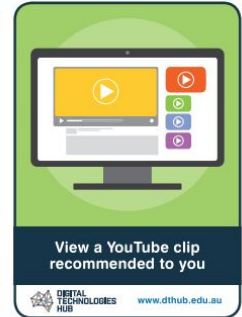
Clustering information

e.g. news recommendations, streaming services, social media content

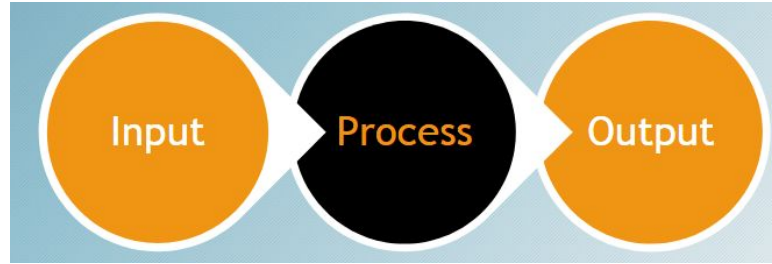
AI introductory lesson: AI cards (Yrs 5-8)



AI CARDS (PDF)



Systems thinking



Inbox
Sent
Drafts
Spam
Trash

Spam is blocked from your inbox

DIGITAL TECHNOLOGIES HUB www.dthub.edu.au

INPUT

An email is sent to your email address

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PROCESS

The system uses past emails you labelled as spam and classifies text of emails and recognises the email as spam

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OUTPUT

The system blocks the email from your inbox

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Systems thinking

Seeing connections between solutions, systems and society

Identifying components of systems

Identifying intended and unintended outputs of a system



Systems thinking: Shark spotting AI drone

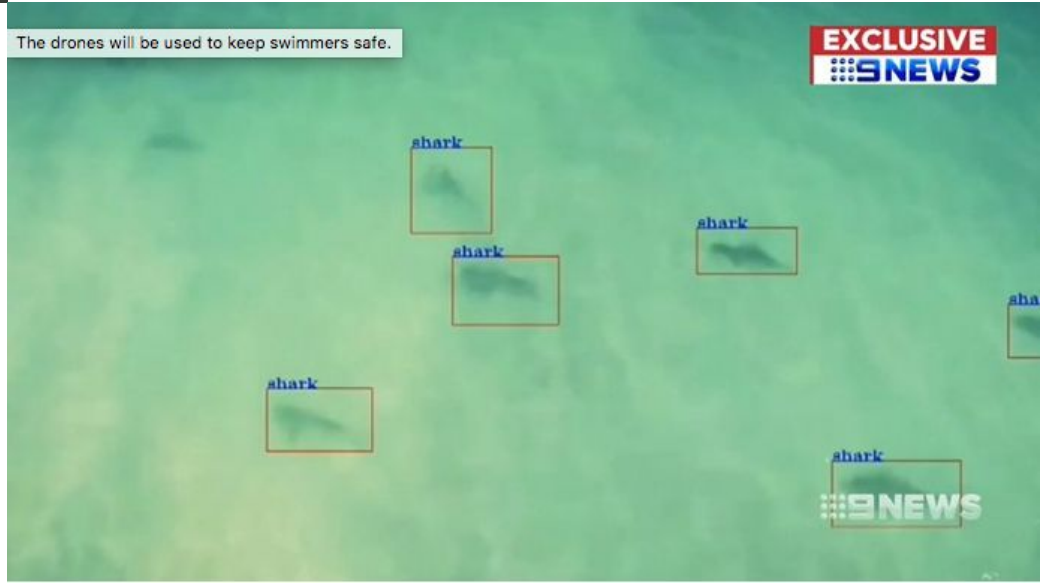
An example of AI: Computer vision

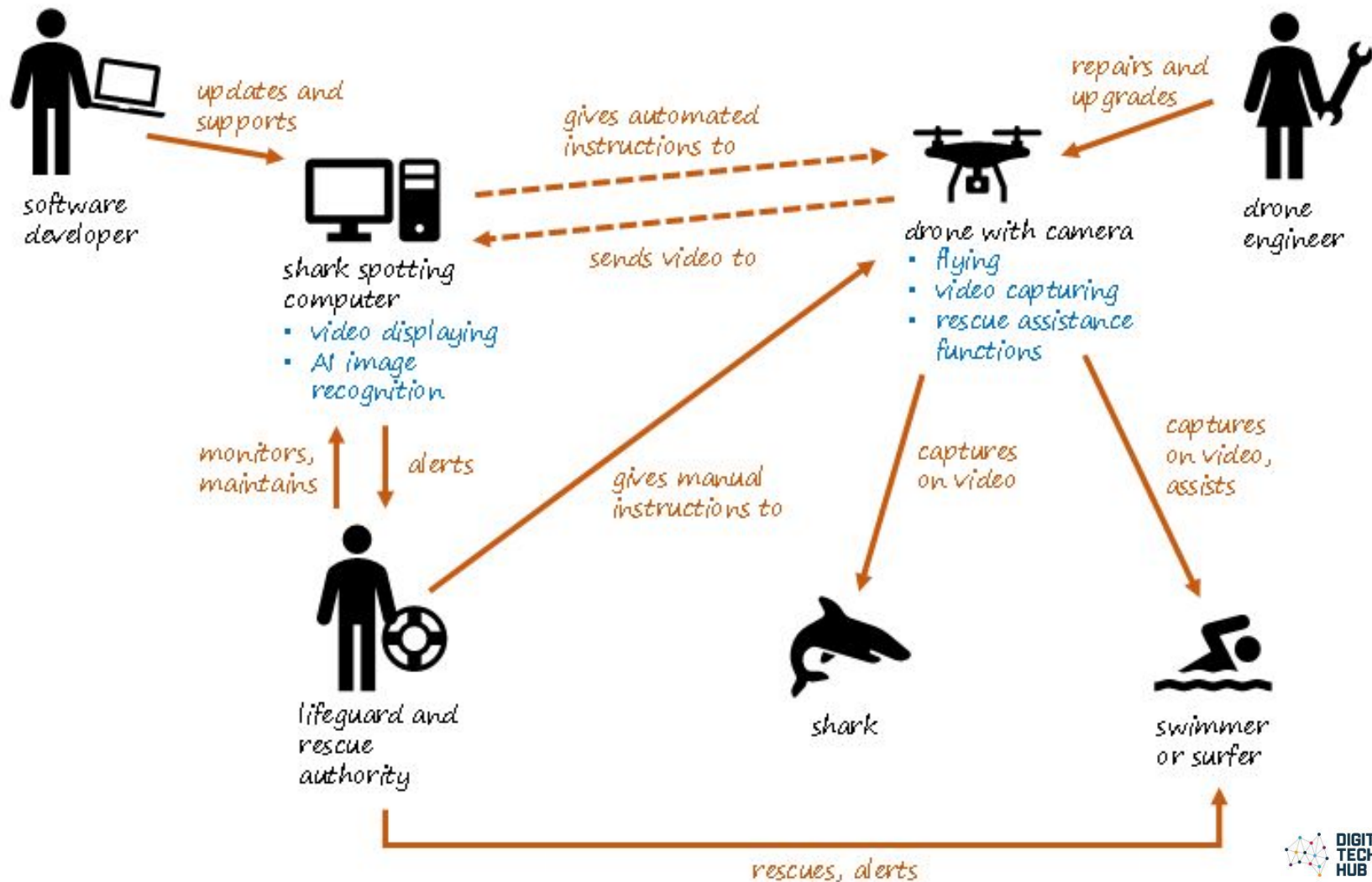
[Little Ripper shark spotting drone.](#)

LESSON: [Systems thinking and AI applications](#)

The drones will be used to keep swimmers safe.

EXCLUSIVE
9NEWS





Ethical issues

A situation where there are competing alternatives and the right thing to do is not obvious or clear.

Sometimes terms such as good, bad, wrong, better or worse are used to consider the effect of particular actions on our lives, society, nature and the environment.

Scenarios: drawing on ethical understanding (AI Quiz)

LESSON: [AI quiz](#)

Scenario: Facial recognition



A company is behind schedule and over budget in building an AI application.

The AI uses facial recognition to unlock a smartphone.

Through testing the company found that the AI worked on **most** people's faces.

Scenarios: drawing on ethical understanding (AI Quiz)

Question 1: Facial recognition

Should the company:

<p>A</p> <p>Sell the phone using this AI to make money and fix the AI in the next version of the phone. Don't mention any issues.</p>	<p>B</p> <p>Take longer and spend more time and money to retrain the AI so it works for all people.</p>
<p>C</p> <p>Sell the phone using this AI but also include a warning alerting the customers that face scan may not work for everyone.</p>	<p>D</p> <p>Fix the AI and sell the phone at a higher price to make a profit.</p>

Creating an AI model

Teachable Machine

Webcam Upload

Happy

57 Image Samples

Webcam Upload

Sad

58 Image Samples

Webcam Upload

Add a class

Training

Model Trained

Advanced

Preview Export Model

Input ON Webcam

Switch Webcam

Output

Backg...	
Happy	100%
Sad	

Preview Export Model

Input ON Webcam

Switch Webcam

Output

Backg...	
Happy	
Sad	100%

Preview this model live

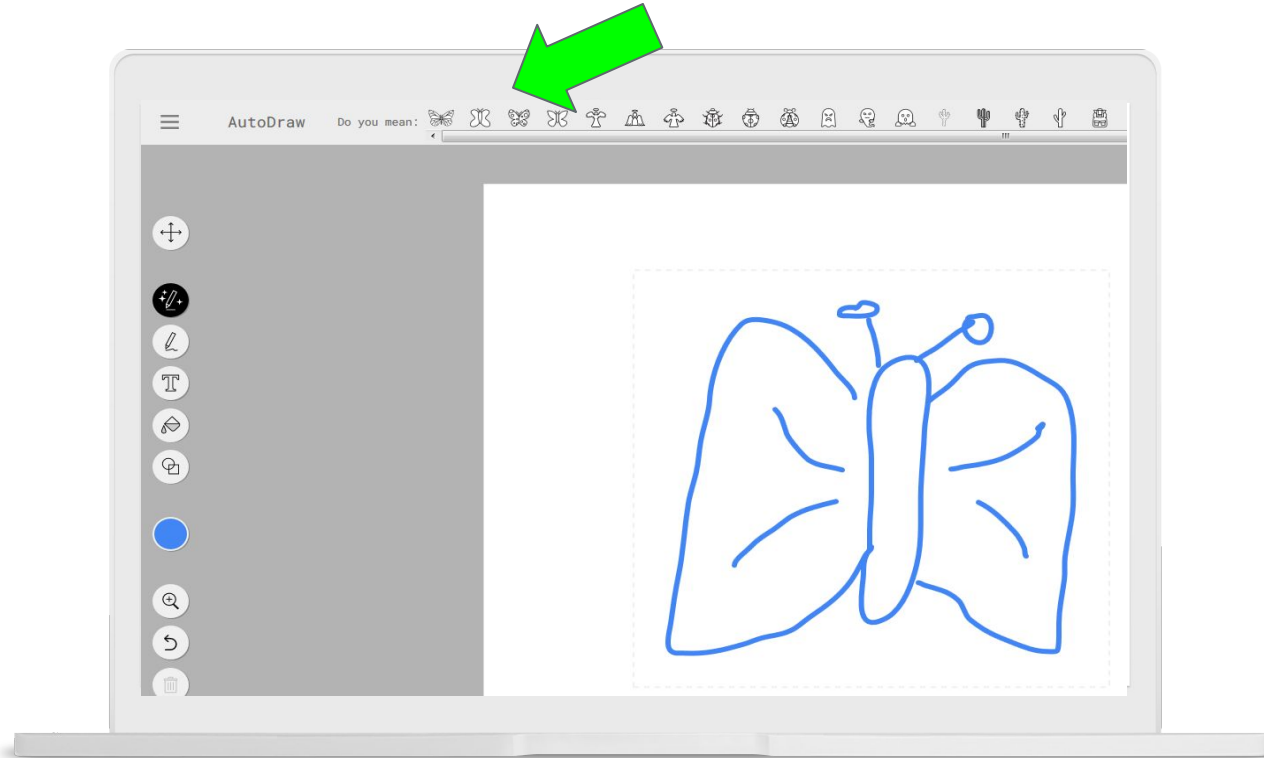
Input: ON Webcam

Output

Backg...	
Happy	
Sad	93%

Data representation, Pattern recognition

AI predictions



Explore the data

Quick, Draw! The Data

Get the data Play the game

What do 50 million drawings look like?

Over 15 million players have contributed millions of drawings playing [Quick, Draw!](#) These doodles are a unique data set that can help developers train new neural networks, help researchers see patterns in how people around the world draw, and help artists create things we haven't begun to think of. That's why [we're open-sourcing them](#), for anyone to play with.

Select a drawing

5:00

QUICK, DRAW!

Can a neural network learn to recognize doodling?

Help teach it by adding your drawings to the [world's largest doodling data set](#), shared publicly to help with machine learning research.

Let's Draw!

This is an A.I. Experiment

Made with Google Assistant from Google

English

Privacy & Terms

AI technology within AR and VR



AR microscope for cancer detection using AI technology



Google Earth VR using AI technology

Assessments of students' use of apps & tools

Think Aloud: Student interview

- (screen captures or saved program)

Self-reflection

- What they learned, challenges, checklist/rating their skills before/after

Analysis

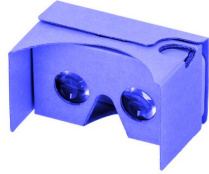
- Artefacts such as worksheets or analysis of AR/VR and AI tools, applications and real world uses.
- Criteria used

Dive in with further resources
& support!

Computer Science Education Research Group (CSER)

AI, AR, VR & Emerging Tech Quick Guide

Artificial Intelligence, Augmented Reality & Virtual Reality in the Classroom



Our Lending Library Kits and supporting resources are funded by the Australian Government Department of Education and Training.

csermoocs.adelaide.edu.au

csermoocs.adelaide.edu.au/resources

Introduction

This guide provides an overview to Emerging Technologies and in Augmented Reality (AR), Virtual Reality (VR) and Mixed Reality (MR)

- Real world examples of emerging technologies
- Key definitions
- Safety & ethical considerations for emerging technology
- Learning & Teaching resources
- Further resources

Let's dive in and have a look at some of these cutting-edge technologies



PL-in-a-Box!
We have an exclusive 'Introduction' you can use to run free professional development. Download it here: <https://bit.ly/Emerging-Tech-PL-in-a-Box>

Artificial Intelligence (AI)

AI-driven technologies can be found all around us in the form of virtual assistants and we see AI being used in applications that are used by everyday people as well as in education, and agriculture.

ground-level photos captured as part of its street view project. Google is also analysing satellite imagery with AI technology to build VR experience of Google earth. If you would like to see more real-world examples of AI we have curated YouTube playlists:

- **AI Natural Language Processing** examples: <http://bit.ly/AI-NLP-examples>
- **AI Computer Vision** examples: <http://bit.ly/AI-ComputerVision-examples>

Key Definitions

Artificial Intelligence (AI) is the creation of machines to mimic human capabilities, such as teaching a machine to see (recognise objects in an image) and listen (interpret and analyse sounds). **Machine Learning (ML)** is a process of achieving Artificial Intelligence. In machine learning, we teach the machine by training it with lots of examples of data demonstrating what we would like it to do so that the machine can figure out how to do it on its own. Below, we have an image that characterises the unique aspects of AI.



Artificial Intelligence

Sense
Reason
Act
Adapt

AI takes raw data (images, sound, text) and processes it using image or text processing.

AI thinks about the information it has received and how it relates to what it recognises and has learned previously.

The AI performs a task or action based on the information it has processed.

The AI uses the successful or unsuccessful outcome as feedback.

(image source: CSER)

If you'd like to learn more about AI and how to teach AI to primary and secondary students, please have a look at our free online courses in "Teaching AI in the Primary and Secondary Classroom" for teachers at csermoocs.adelaide.edu.au/available-moocs.



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Classroom Use

- General classroom setup advice
- Health and safety considerations
- Before/After class
- Managing groups/individuals
- Pedagogical advice

GoMeta, Inc. Privacy Policy (1.0)
Effective date: 9/20/16

We at Company know you care about how your personal information is used and shared, and we take your privacy seriously. Please read the following to learn more about our Privacy Policy. By using or accessing the Services in any manner, you acknowledge that you accept the practices and policies outlined in this Privacy Policy, and you hereby consent that we will collect, use, and share your information in the following ways.

Remember that your use of Company's Services is at all times subject to the [Terms of Use](#), which incorporates this Privacy Policy. Any terms we use in this Policy without defining them have the definitions given to them in the [Terms of Use](#).

What does this Privacy Policy cover?

This Privacy Policy covers our treatment of personally identifiable information ("Personal Information") that we gather when you are accessing or using our Services, but not to the practices of companies we don't own or control, or people that we don't manage. We gather various types of Personal Information from our users, as explained in more detail below, and we use this Personal Information internally in connection with our Services, including to personalize, provide, and improve our services, to allow you to set up a user account and profile, to contact you and allow other users to contact you, to fulfill your requests for certain products and services, and to analyze how you use the Services. In certain cases, we may also share some Personal Information with third parties, but only as described below.

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Privacy Impact Assessment

Computer Science Education Research Group (CSER)

Classroom Usage Guide

AI, AR, VR & Emerging Technologies





Thank you

Our Lending Library Kits and supporting resources are funded by the Australian Government Department of Education and Training.



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If you enjoyed today's activities...



Artificial Intelligence (AI) at Home!

If you have access to a computer, smartphone or tablet device, we have some activities for you!

What is Artificial Intelligence?

Artificial Intelligence is the ability of machines to mimic human capabilities in a way that we would consider 'smart'. In conventional computing, a programmer writes a computer program that precisely instructs a computer what to do to solve a particular problem. With AI, however, the programmer instead writes a program that allows the computer to learn to solve a problem by itself.

What are real AI solutions?

Technologists have created Artificial Intelligence (AI) technology that:

- enable farmers to easily monitor their crops and to detect plant diseases and poor plant nutrition.
- support healthcare workers to interpret many different types of image data such as radiographs and ultrasound and provide diagnostic expertise.
- help us conserve wildlife by monitoring animal populations using accurate and efficient data analysis!

See more: bit.ly/AI-NLP-examples & bit.ly/AI-ComputerVision-examples

Experience & Create with Artificial Intelligence

Can an AI guess the word you are thinking of?

Play the word association game **Semantris**. This game is powered by machine learning trained on natural language; words we use everyday. The AI looks for words that best matches the word you type as the input. It is a game of strategy. How many points can you score?

Required: Device with browser connected to internet.

Learn how machine learning works!

Go to the **Teachable Machine V1** website and follow the tutorials to create your own AI model. Test out your model to see how well the AI recognises your images. Image recognition is a key field of AI.

Required: Computer, smartphone or tablet with camera. Internet to access the website.

Use an AI to write as you speak!

Open the application **Voice Notepad**. This tool uses speech recognition, a form of AI. Try telling a story by speaking into your mic. It saves you typing. Save your work and edit your story. How well does the AI recognise what you are saying?



Required: Laptop, Desktop, Smartphone or tablet that has a microphone. Internet to access the website.

Translate a language into English

Explore translating text and speech into a language of your choice using **Google Translate**. You can type in a word, speak or use your camera to view a sign that you want translated. Try creating your own translator in Scratch. Here's an example to remix [Text to speech translator](https://scratch.mit.edu/projects/45812345).

Required: Computer and smartphone or tablet with a microphone and camera. Internet to download app or use your browser and website.

https://bit.ly/CSER_AI_at_Home_1



Augmented Reality (AR) at Home!

If you have access to a computer, smartphone or tablet device, we have some activities for you!

What is Augmented Reality?

'Augmented' means to add or enhance something. In the case of Augmented Reality (AR), graphics, sounds and touch feedback are added to our natural world through a digital device (such as a tablet or phone) to create an enhanced user experience. AR merges the physical and digital worlds in real-time by overlaying digital information on top of the physical environment through a device.

What are real AR solutions?

Technologists have created Augmented Reality (AR) technology that:

- helps people with blindness or vision impairments navigate in their everyday world.
- enable farmers to easily monitor their crops and to detect plant diseases.
- support medical scientists by enhancing microscopes with an augmented digital layer of information to detect cancerous cells with accuracy.
- allow us to play games (e.g. Pokemon Go!) in worlds that combine physical and virtual!

See our CSER YouTube Playlist of AR examples at <https://bit.ly/AR-playlist>

Experience & Create with Augmented Reality

See a NASA Spacecraft up close and personal in AR

Download the 'Spacecraft AR' App by [NASA Jet Propulsion Laboratory](https://www.nasa.gov/feature/jet-propulsion-laboratory). Use the app to bring to life spacecraft objects in AR. Take a photo next to one! If you were to create your own spacecraft which planet would you create it for and how would you design it?

Required: Smartphone or tablet. Internet to download app.

Design & create your own AR app!

Go to the Metaverse website (studio.gometa.io) and follow the tutorials to create your own AR app. Download and view your creation on your smartphone using the Metaverse App.

Required: Computer and smartphone or tablet. Internet to download app and to access the website.

View objects in our Solar System with the help of AR!

Download the "Planets" app by Q Continuum to a smartphone or tablet device. Open the app and explore the sky during the day or night. Can you find Mercury, Venus and Mars? What constellations can you see? Which are visible by the human eye?

Required: Smartphone or tablet. Internet to download app.

Use AR tech to bring your Artwork to life with Artvive

Create your own digital artwork on a computer using an account at the Artvive website (<https://artvive.com>). Download the 'Artvive' app and hover the app over your artwork to see it come to life!

Required: Computer and smartphone or tablet. Internet to download app and use the website.

<https://bit.ly/CSER-AR-at-Home-1>

Artificial Intelligence lesson plans

Humans display natural intelligence in contrast to machines that demonstrate artificial intelligence (AI).

AI has various definitions however for our purposes we are using the definition 'any device that perceives its environment and takes actions that maximize its chance of successfully achieving its goals' [1]. [Read more...](#)

The following lesson ideas cover a range of specialisations and subsets of AI. Each lesson plan is colour coded. Click on the coloured squares to learn more about each

				
Machine learning	Supervised learning	Natural language processing	Computer vision	Classification

Lesson plans

Artificial Intelligence

5-6



Recognising AI

Use the tasks in this lesson to introduce concepts that underpin artificial intelligence (AI). The majority of the tasks are unplugged (do not require a digital device).



Note the music

An AI using the technique of clustering, looks for patterns in data, in this case the data is musical notes. Students can code a program that plays a particular note for a set beat (non-AI) or instead they can incorporate the random function to mimic AI clustering.



Home automation with AI

Home automation can take your voice commands using speech recognition AI as you talk to your mobile phone to control the lights, the fan, the air conditioner, or other smart devices. Students investigate the control required to switch lights and fans on or off through an artificial neural network.



Home automation with AI

Investigate home automation systems, including the powered by artificial intelligence (AI) with speech recognition capability. Select a caterer for students' programming skills.



Data bias in AI

Artificial intelligence can interpret text and speech.



Anti-bullying AI

Natural Language Processing interprets text and speech.

7-8



Recognising AI

Use the tasks in this lesson to introduce concepts that underpin artificial intelligence (AI). The majority of the tasks are unplugged (do not require a digital device).



Anti-bullying AI

Natural Language Processing interprets text and speech. Explore an Artificial Intelligence application that simulates checking text say for example those from a social media post.



Coding a sentimental chatbot in Python

Natural Language Processing (NLP) interprets text and speech. Chatbots provide a useful context to explore NLP. In this module students code a chatbot in Python, a conversational program capable of responding in varied ways to user input, including the use of smart sentiment analysis.



Home automation with AI

Home automation can take your voice commands using speech recognition AI as you talk to your mobile phone to control the lights, the fan, the air conditioner, or other smart devices. Students investigate the control required to switch lights and fans on or off through an artificial neural network.



Data bias in AI

Artificial intelligence can sometimes be biased to certain shapes or colours. When such AI systems are applied to situations that involve people, then this bias can manifest itself as bias against skin colour or gender. This lesson explores bias in AI.



Book analysis with AI techniques

Explore text analysis through Natural Language Processing, a significant application of Artificial Intelligence. View a series of video tutorials to develop a Python program that can break down and analyse the content of a complete text, such as Robert

9-10



Coding a sentimental chatbot in Python

Natural Language Processing (NLP) interprets text and speech. Chatbots provide a useful context to explore NLP. In this module students code a chatbot in Python, a conversational program capable of responding in varied ways to user input, including the use of smart sentiment analysis.



Book analysis with AI techniques

Explore text analysis through Natural Language Processing, a significant application of Artificial Intelligence. View a series of video tutorials to develop a Python program that can break down and analyse the content of a complete text, such as Robert Louis Stevenson's *Treasure Island*, and use smart sentiment analysis to attempt to determine the villain(s) and hero(s).



What would my preferred future book be like?

Matlyn Mawby, Head of Personalised Learning at College, explains how she implemented project-based learning (PBL) with her year 10 class to explore Artificial Intelligence (AI). Through this project, students selected an area of interest and investigated what was possible, probable, and preferred.



AI ethics - What's possible, probable and preferred?

The development and ubiquity of Artificial Intelligence raise a number of social and ethical matters that students can explore in the Digital Technologies classroom. This lesson idea outlines a project to help students frame such discussions using the curriculum Key Idea of Creating preferred futures, tying into Critical and Creative Thinking.



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EMERGING TECHNOLOGIES

Virtual reality

Virtual reality (VR) is a 3D computer-generated environment which can be a highly imaginative, or a realistic, simulation of the actual world. Depending on the VR environment, people can interact through first-person (through their own eyes or the eyes of a character) or through third person (disembodied) perspectives, or they can switch between the two.

VR can be delivered via a desktop computer, mobile computing device or with a head-mounted display (HMD), which can be a headset or goggles.

Safety

Teachers need to consider the safe use of VR with students. As a first step, teachers should consult and follow manufacturers' guidelines.

Augmented reality

Augmented reality (AR) allows computer-generated information and virtual objects to be overlaid on physical object in real time. AR is a relatively young technology in terms of mass adoption. AR can be delivered by via desktop computers, projector systems, mobile devices, such as smart phones and tablets, and head mounted displays (headsets, goggles or glasses). The most common type of AR is that delivered through mobile devices such as tablets and smart phones.

- Lesson plans
- Case studies
- Classroom resources
- Assessment support
- Webinars
- and more!

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Our CSER Communities are aligned with each of our MOOCs and support professional learning through the sharing of Digital Technologies resources and practices for the classroom and ongoing professional networking.

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CSER Lending Library

Free access to the latest equipment to support Digital Technologies learning in the classroom.

Priority to disadvantaged schools.

Augmenting Reality Kit

This kit features 4 sets of Augmented Reality materials in various formats designed for 1-2 classrooms, and is well suited to years 5-10 although can also be used for later years. Each kit contains:

- a range of t-shirts compatible with AR apps (eg Virtuali-tee, Indigital)
- AR flash cards
- AR posters
- 4 x iPads with relevant apps loaded
- iExplore Brain books
- iExplore Space books

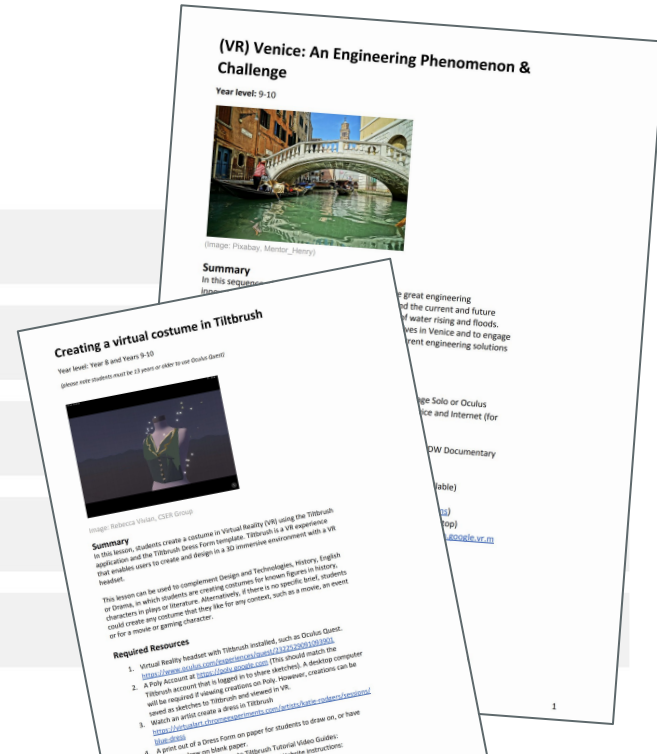
Virtual Reality Daydream Kit

Augmented Reality in Space Kit

Virtual Reality Quest Kit

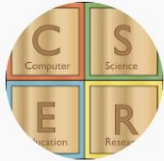
Merge Cube Kit

Lesson plan and project exemplars



Find videos, webinars & tutorial support for AR, VR and AI

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Planning and Using Metaverse

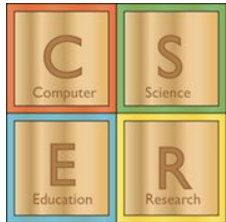
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