Xuan Ye, *It Takes Spirals to Feed a Spiral*, 2021-2022.
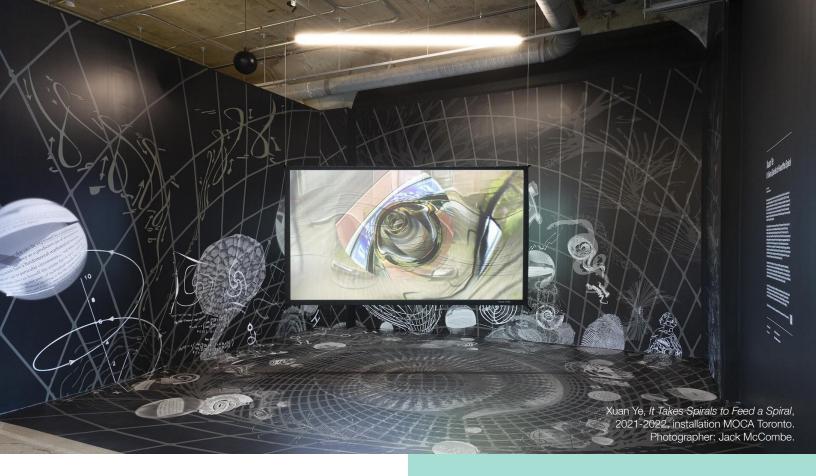Video Still. Courtesy of the artist.

Educator Resource

Recommended Age: Grade 7 and up

Xuan Ye
It Takes Spirals to Feed a Spiral
May 25 – July 31, 2022

Museum
Of
**Contemporary
Art**
Toronto Canada

Overview

Xuan Ye 叶轩 is a Toronto-based Chinese multimedia artist who makes publications, installations and performances through a myriad of technologies. They work with networks like the Internet, machine intelligence, electronic circuits and living matters to experiment with multi-sensory world-building.

Blurring the physical and the virtual, Ye's *It Takes Spirals to Feed the Spiral* (2021–2022) looks at spiral as an archetype and reimagines conceptions of space and time. In their practice Ye refers to nanoscopic imagery that reveals the double helix structure in DNA, and telescopes that make visible the spiral formations of galaxies.

In this exhibition space, the immersive vinyl wallpaper constitutes a meta-textual diagram featuring a 3D model of the human cochlea, visually expanding this organ beyond the bounds of the human body. Viewers can scan the vinyl with their smartphones to reveal a layer of augmented reality.

Suspended from the ceiling is a video consisting of animations and sequences created by artificial intelligence algorithms. The moving image presents a journey into a seemingly infinite spiralling realm that is accompanied by an original sound work, blending algorithmic composition by Jason Doell with improvised ritualistic sounds and vocalizations by the artist.

Ontario Curriculum Connections

Science and Technology
Grade 7
Understanding Structures And Mechanisms: Form And Function 1, 2, 3

Grade 8
Understanding Structures And Mechanisms: Systems In Action 1, 2, 3

Computer Science
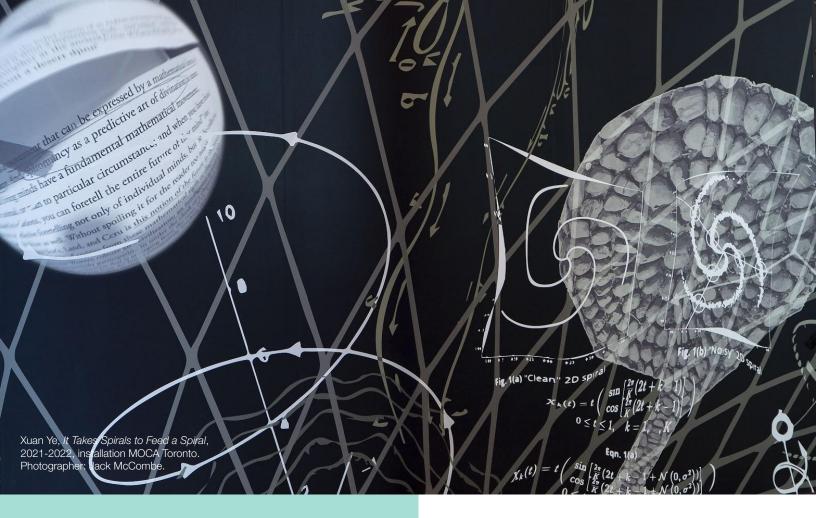*Grade 11*
D2. Exploring Computer Science

Grade 12
D3. Emerging Technologies and Society
D4. Exploring Computer Science

Integrated Arts, *Grade 9/10*
A. Creating and Presenting
B. Reflecting, Responding, and Analysing
C. Foundations

Media Arts, *Grade 10 – 12*
A. Creating and Presenting
B. Reflecting, Responding, and Analysing
C. Foundations

Xuan Ye, *It Takes Spirals to Feed a Spiral*, 2021-2022, installation MOCA Toronto. Photographer: Jack McCombe.

GUIDING QUESTIONS

How does augmented reality change the experience of the exhibition for you? How does augmented reality change your preconceptions of what is "real"?

What are some things you often see as spirals? Do these things have personal, cultural, or historical significance? Other than their shape, can you think of other connections between them?

If you were to make a multimedia and multisensory installation based on a shape, what shape would it be? Why?

As you watch the video, how do you feel? Are there moments or images in the video you can identify with? If so, where have you seen them before? Can you relate the video to anything you've experienced before, virtual or real? How does the sound impact your experience of it?

Key Ideas

Algorithm, archetype, augmented reality, machine learning, spirals, systems

Glossary

Algorithm: a set of instructions that a machine or a human can use to solve problems or complete tasks

Augmented Reality: technology that superimposes a computer-generated image on a user's view of the real world. Often this is activated through the camera on a user's phone or a similar personal devices

Machine Learning: part of the bigger field of artificial intelligence, machine learning uses algorithms to teach computers how to learn without continuous explicit instructions

Activity | Grade 7 – 12

Xuan Ye uses principles of machine learning for this artwork. Machine learning is increasingly becoming part of our everyday world, influencing the arts and artists. In this activity, students will follow Ye's methodology, putting texts into open-source AI programmes to create images which they will then reconfigure by hand, through either drawing or collaging. This activity will encourage students to think about the relationship between AI and human modes of creation.

Materials: Computer/tablet, collage materials (scrap paper, newspapers, magazines, etc.), printing paper, drawing utensils

Instructions

Divide your class into two unequal groups. Give one person from each group a starting text. The text can be a word, phrase, or a few sentences.

Group 1 (larger group)

1. Have one student input the given text into https://hotpot.ai/art-maker, which will generate an image.
2. A second student will receive the image, and write their own piece of text in response to it. Then, they will put this piece of text in the programme to generate a new image.
3. A third student will take the new image generated by the second student, and repeat the process.
4. This sequence will continue until the last student in the group.

Group 2 (smaller group)

1. Have one student produce a small, quick (< 1min) drawing based on the starting text. They will pass this image to another student.
2. The second student will generate a piece of text that corresponds to the drawing, and pass the text on to another student.
3. The third student will repeat the sequence by producing a small drawing based on the text.
4. Continue the sequence until the last student in the group.

Reflection

Compare and contrast the experiences of the two groups. **How did using AI feel during the process? How did not using AI feel during the process?** What are some similarities and differences?