
MICRO
WORLD
Lincoln
9TH July - 2ND October 2022
The Collection
Art and Archaeology in Lincolnshire

Microworlds are spectacular digital worlds or **ecosystems*** built by artists **Genetic Moo** that are filled with amazing creatures. Inspired by ecosystems found in nature, these digital creatures have life cycles, energy needs and survival techniques.
The creatures respond both to each other and you, the audience. You can interact with the creatures or design your very own and release them into the interactive Microworld. Like an ecosystem, each of the Microworlds in the gallery creates cascades of action and reaction that impact the others, forming part of the wider digital world in the gallery.

***An ecosystem is a community of living organisms (animals, plants, bacteria, fungi) and nonliving components (air, water, minerals, soil, weather and climate). These biotic and abiotic components interact with each other through nutrient cycles and energy flows.**
A digital ecosystem is an ecosystem made up of computers, sensors, projectors, electricity and people forming a simulation of Nature.

The soundscape for Microworld was designed by Julia Schauerman.

Genetic Moo is a collaboration between creative coding couple Nicola Schauerman and Tim Pickup. They create large-scale interactive installations for museums and galleries. Their art encourages experimentation and play and is inspired by popular science, particularly ecology, artificial life and evolution.

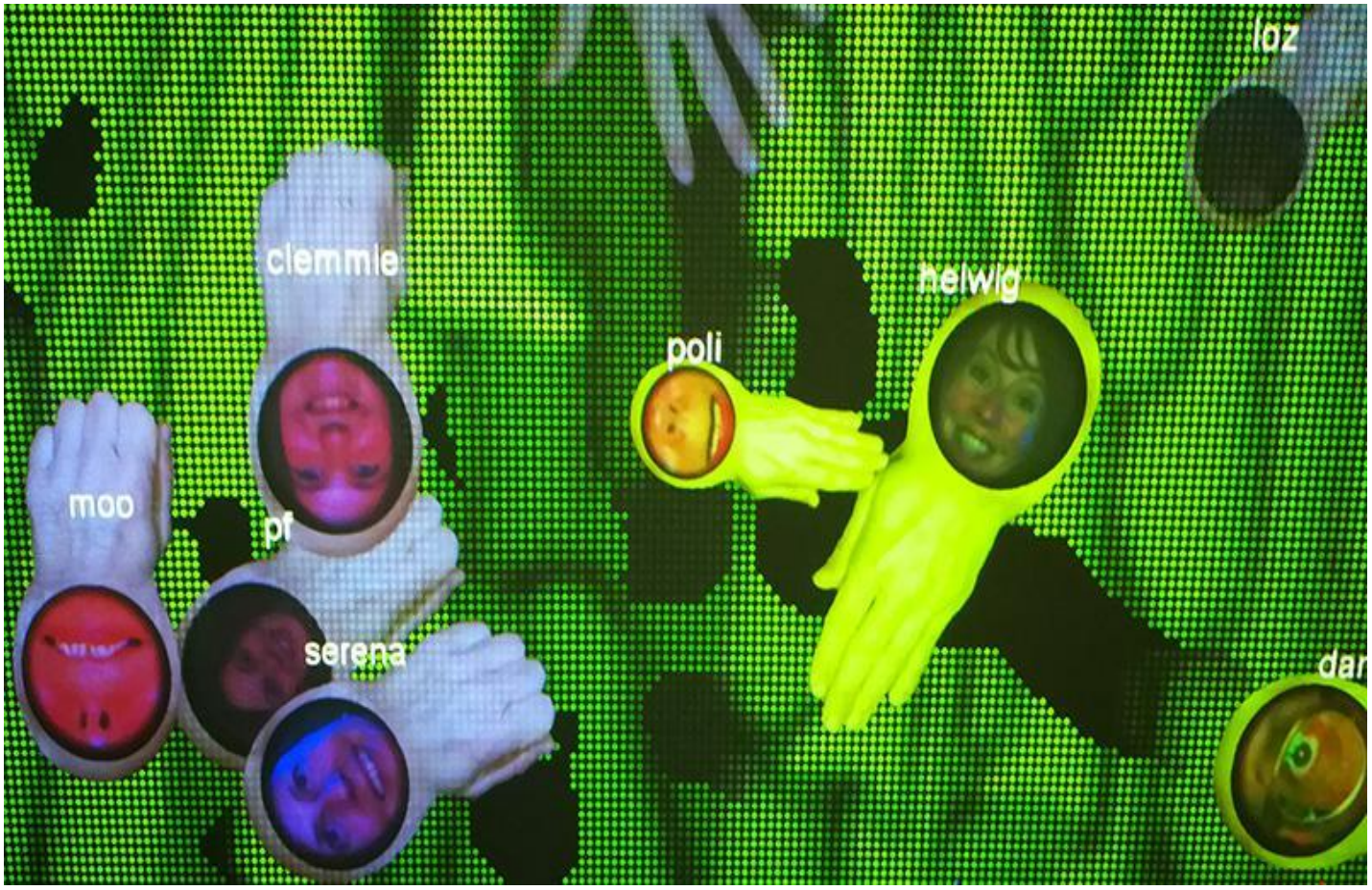
Since 2013, Genetic Moo has been working on Microworld, an ambitious digital ecosystem project. Microworlds are immersive art spaces filled with digital creatures with life cycles and survival techniques and which respond to visitors using sensors. Visitors can interact with the creatures or design their own. Microworld is produced by Lumen Art Projects and has been shown around the world in Europe, USA, the Middle East and Asia. In the last five years, over 350,000 people have engaged in a Microworld.

Multiple

This piece uses a **Kinect Sensor*** which converts the audience into coloured silhouettes. These silhouettes are multiplied across the screen in geometric and organic patterns. The patterns and colours change each minute so there are many ways ways to fill the screen with fantastical forms.

***A Kinect Sensor is a type of motion sensor originally used with the Xbox.**

Squidlets



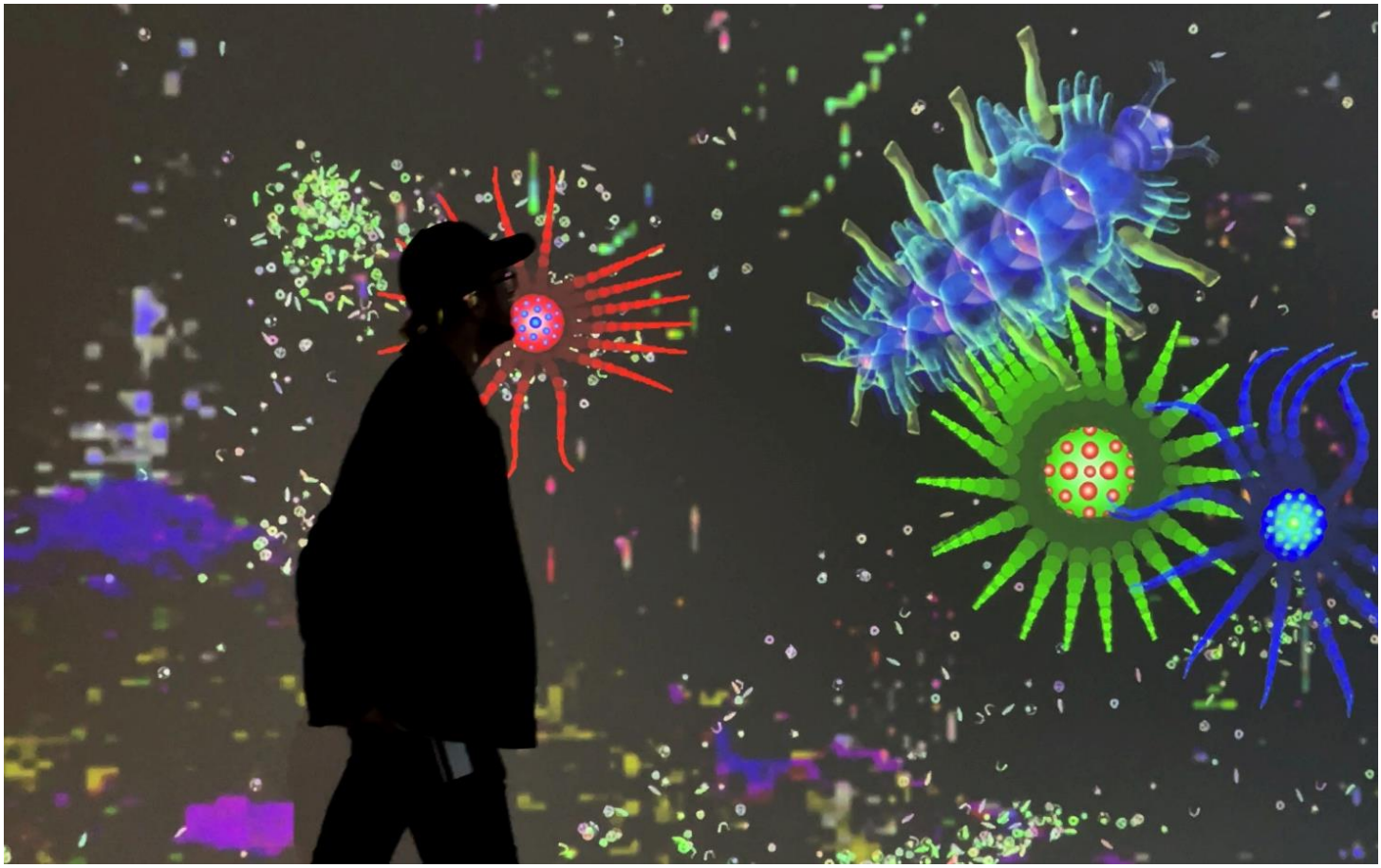
This piece allows you to add yourself into an underwater ecosystem. Your Squidlet will join other Squidlets swimming around, looking for food, competing for survival. As they eat the coloured dots on the screen - they grow bigger. As the dots disappear there is less for everyone else to eat. Those without food will shrink away to nothing. New dots appear in response to the surrounding room.

Its Alive! Maggots

It’s Alive! Maggots presents a webcam image of the room which hosts two populations of creatures: maggots and spiders, in a constant struggle between order and chaos. The maggots eat away at the image and the spiders repair the image. They are screen parasites. This living interface is a self-contained digital ecosystem presenting the forces of destruction and creation.

It's Alive! Maggots slowly reflects the changing visuals in the room. Although the image is made from pixels it has a painterly quality and does not immediately appear to respond to humans. However, if you stand in front of the webcam and keep still, you will gradually become visible on the screen. The maggots may even start eating at your image! This piece is slow and contemplative. As the Microworld goes through its cycles the maggots and spiders continuously recompose the screen pixel by pixel.

Hector and the Sunstars



Hector & The Sunstars inhabit an aquarium landscape created from a live webcam. Hector is a cross between a sea slug and a boy. It roams around munching on plankton. When Hector is full it sleeps. Keeping him company are three Sunstars which respond to red, green and blue in the room. This is a mini ecosystem where everything responds to each other and the colour in the room.

SeaPeople

Visitors can engage in a multi-layered ecosystem where agents struggle to control the forces of nature. All aspects of the on-screen activity can be controlled through a simple smartphone app accessed through an onscreen QR code. The program includes swarms, plants, robots, cities, wave forms and the ever-active SeaPeople.
This piece was developed during lockdown “we turned our living room into an interactive gallery. We live by the sea and the piece includes footage from our local beach in busier times.”
The overall feel is chaotic and **dystopian*** but order eventually prevails.

***Relating to or denoting an imagined state or society where things are out of balance.**

Aeroplankton

Fragile life forms drift around the screen. *Aeroplankton* respond to sounds in the room. Loud sounds can generate new Aeroplankton - their shape based on the frequency heard and the **superformula*.** If the Aeroplankton get enough of their own frequency they grow. Aeroplankton constantly change, mutate and evolve in response to the audio in the room. Eventually, they can split into two smaller versions with slight mutations. Aeroplankton are an atmospheric equivalent to oceanic plankton. They share the screen with a bristleworm.

***A mathematical equation which models lifelike forms.**

Swimming with Animacules

A swarm of fanciful small creatures whose body shapes recall microscopic life forms. *Swimming with Animacules* was inspired by the 17th century Dutch scientist Antonie van Leeuwenhoek who built microscopes and was the first person to describe living 'molecules' in a sample of pond water. He christened them Animacules.
This piece belongs to a series of works that explore the theme of “imagined future evolutions” and combine human and sea-life forms.

In this interactive version the audience can shrink themselves down in size and swim with the Animacules.

Medusa & the Snail

Medusa & the Snail is an **expanded cinema*** film projected onto multiple hanging screens. Videos of real and virtual forms are blended in complex visual layers.

The ‘real’ footage includes video of objects from The Collection Museum. The artists selected fossils and 16th century armour. The artists consider both sets of objects ‘containers of life’. The ‘virtual’ footage is a series of artificial life simulations created by simple computer algorithms. The video sequences are filtered through each other.

This work is directly inspired by ‘The Medusa & the Snail’ a short essay by Lewis Thomas about two **symbiotic**** species (a medusa jellyfish and a sea snail mollusc) whose life cycles are intimately intwined.

*** Expanded cinema is a film, video, multi-media performance or an immersive environment that transforms the medium of cinema, reimagining the relationship between the audience and the screen.**

****Living together.**

More information on ecosystems:

Within an ecosystem, various processes can be observed:

- Ecosystems contain **food chains.** Plants capture solar energy - are eaten by herbivores in turn eaten by carnivores. Food chains can contain scavengers, decomposers and predators.

- **Ecosystem engineers** can modify, maintain or destroy a habitat, e.g. beavers or worms. These engineers can have a big effect on the environment.

- **Niche construction**. All life-forms alter their surrounding environment. This might be as simple as eating other things or more complex like building a nest. These alterations are often beneficial but not always think about pigeons messing up their living space.

- **Primary producers** in nature are plants which convert sunlight into food. In a microworld we consider the audience as the primary producers of activity - generating pixel energy and motion.

- **Keystone species** are creatures who keep the ecosystem together - if they are removed then things get out of balance and can die.

- **Indicator species** can be used to monitor the health of an ecosystem. This role can be fulfilled by the exhibition staff!

- A **superorganism** is a group of interacting organisms e.g., an ant colony. Many individual agents with limited intelligence and information can work together to accomplish a goal beyond the capabilities of the individuals. Superorganism art is an artwork made by many members of a community. Genetic Moo have created a Superorganism artwork with the Creative Collective – a local group of young people who work with The Collection Museum. You can see this piece in the Courtyard Gallery.

- Rather than a day / night cycle in Microworld we have an **RGB cycle**. In each phase which lasts about 10 minutes different creatures and effects will be highlighted.
- The first rule of ecology is that ‘**everything is connected to everything else**’. Microworlds bring out these connections.