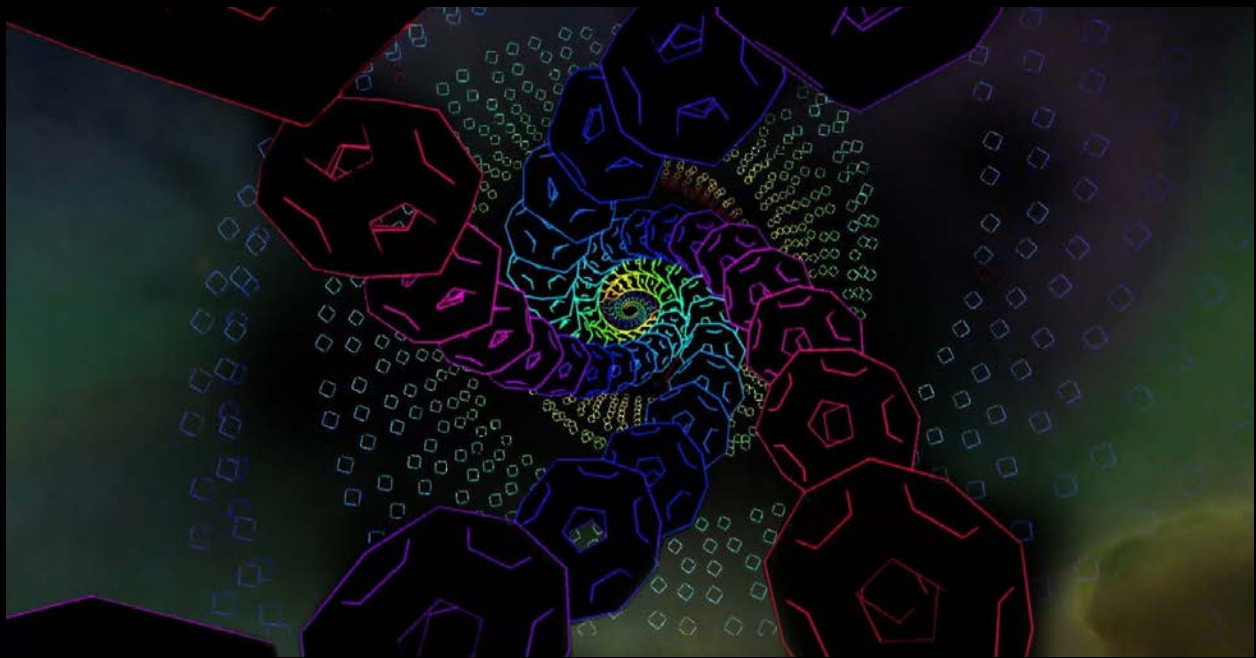


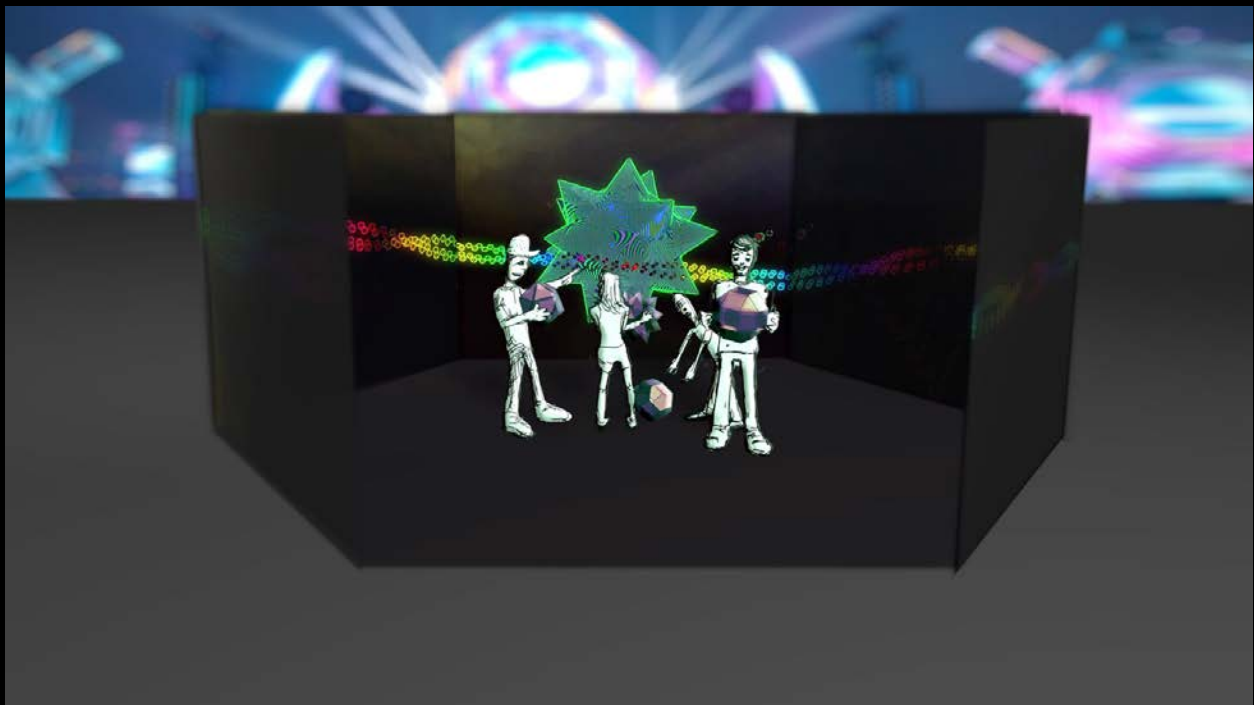
# FRACTAL NAVIGATION CHAMBER

INSTALLATION DEMO made w/ UNITY ENGINE  
BEN LUCKINBILL | JANUARY GORSLINE



Enter the hexagonal chamber through its single open wall. Five projection screens fill your field of vision. You see your place in the universe as a point on a fractal stretching from infinitely small to infinitely large. Dense interstellar clouds, distant jewel-like planetoids, portals - and who knows what else - lie just beyond reach.

At the center of the chamber four luminescent polyhedral objects pulse with light, and do so more intensely as you approach, inviting you to pick them up. You'll need two hands. As you lift the object the vision around you moves suddenly. It will only take moments for you and your friends to realize these objects control the invisible "ship" you are on. After some experimentation the familiar functions of pitch, yaw, roll, and acceleration - given to each of the objects respectively - will become apparent. But they will need to be learned in a new way for you to navigate this space. Four minds must act as one.



Take flight and explore the vision. React and interact with what you find. Possible paths divide outward like tree branches as you travel the fractal geometries. Tendrils spiral, spores launch, crystals blossom.

Discover the wildcard functions of the control objects. Realize there are interactive event triggers and Easter eggs to be found everywhere, even within the physical space and the control objects themselves.

▶ [DEMO VIDEO \(2:00\)](#)

**The Fractal Navigation Chamber** (FNC hereafter) is an interactive immersive video projection experience conceived for music festivals but transferrable to other spaces.

Users will explore a mesmerizing fractal universe surrounded by any number of screens in any layout. Single screen, dome, indoor, outdoor, you name it. The physical layout of displays and physical space can be tweaked as needed.

It is envisioned here for an outdoor space and five large screens - a hexagon open on one side - observers and people waiting their turn can sit and watch from within the chamber on white beanbag chairs.



### **The Control Objects**

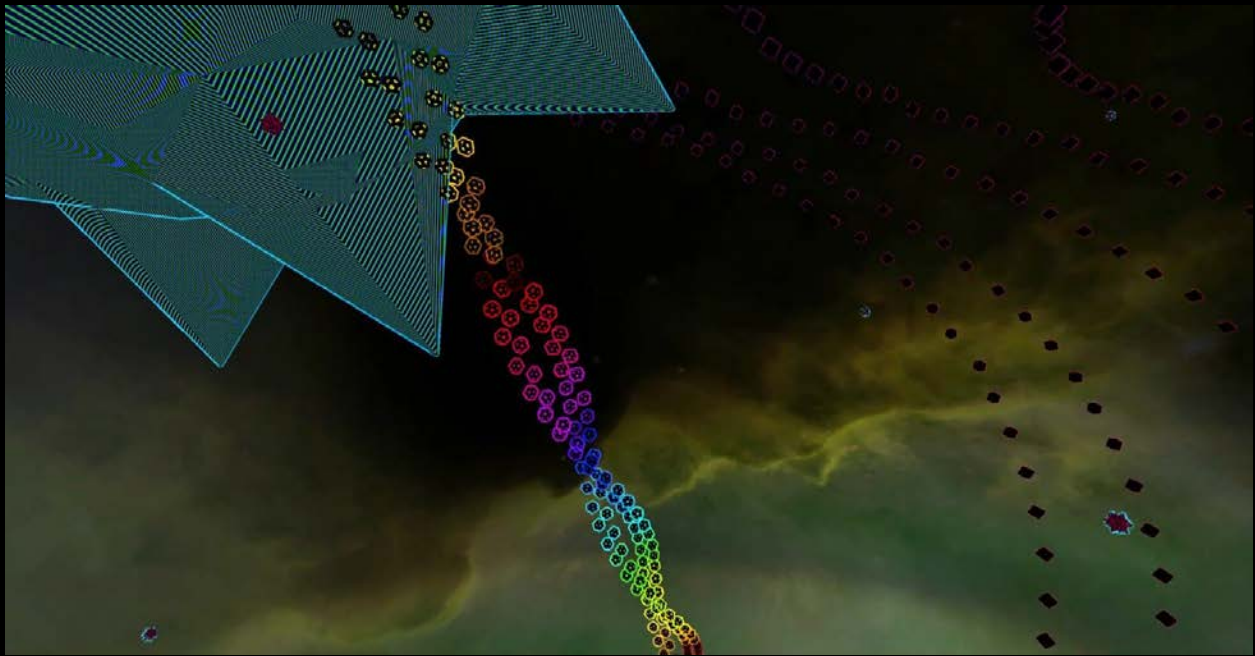
At the center of the projection space, resting on stands, will be four white luminescent geometric objects each about 18 inches across. They will require two hands to manipulate so that explorers will not be able to use smartphones during the experience.

Each object controls an aspect of interaction with the universe projected around you, primarily movement in space. In essence the functions of a video game controller or a flight simulator are split across these objects. Users will have to use verbal communication and cooperation to navigate the world around them.

Surprising interactive events will be triggered by object manipulation. For example, if they are all touched against each other players will warp into a more dense and difficult “level”. Shake an object and be treated to a cartoon mini-game. Drop an object and be contacted by a voice

from a radio embedded within the object itself. Navigate successfully for an extended period of time and have two real life fractanauts enter the physical space to take you to the mothership (and give someone else a turn).

The objects will provide user feedback with light, sound, and vibration.



## The Gamespace

The universe that navigators will explore has been built from scratch in Unity game engine. The video presented here is not just a visualization or an animation but a working interactive demo. In the fully realized version there will be ambient audio triggers and a wider variety of shapes and interactive events. There will be auroras, stardust trails, and wormholes leading to alternate universes and cavernous interior mazes. Alien hieroglyphs, animated cartoon sprites, and Easter egg moments will personalize the experience for each set of users. These

moments will be randomly generated or assigned to specific objects and locations but also triggerable from a control station. This will create variety and encourage exploration and cooperation with fellow navigators.



**The Concept** is a mix of high and low art. Tactile sculptural objects embedded with LEDs, speakers, sensors, and credit card sized computers control a psychedelic retro video game styled open world sim with no winners and no enemies projected on multiple screens in an immersive space. The participants become performers. It will be as fun to watch as participate directly.

The only “point” of the FNC is to force four people to use real world communication to function as a single harmonious mind and to reward them with a magical shared experience. The FNC is about AR, VR, and simulated worlds being used to enhance and encourage face to face interaction and cooperation in an open space.

## The Execution

The FNC can use projectors, video walls, or any arrangement of displays - the only vital aspects being an open space and a wide enough image to fill four participants' field of vision. Unity Engine and a powerful PC are all that are needed to drive the images to the screens. Add commercially available projection mapping software and a video dome or other more complex visual arrangements could be achieved.

The control objects will be made of vacuformed plastic; matte white, translucent, with a slight texture, almost soft to touch like baby toys. The plastic shell segments will be assembled over lightweight wood or plastic frames. They must be a moderate weight, yet robust enough to be handled and dropped for many hours.

The "brain" in each object will be a Raspberry Pi to drive LED lights, sounds, haptic feedback, and transmit positioning data to the installation. A combination of accelerometer, IR distance, and motion tracking data will provide control input to the simulation on screen. An access panel could give access for battery pack changes but may not be necessary. In testing, a single consumer grade rechargeable AA battery could power the object for up to an hour. Build twenty or so into the frame and power will not be a concern. More robust and lightweight options will be explored.

While technically practical and within scope in terms of production cost for an interactive video installation of its type, The Fractal Navigation Chamber will dance nearer to the realm of technology as magic than most. It will also provide a longer duration of user engagement.

The FNC is an expression of worlds envisioned in altered states of consciousness. An experience about journeys, not destinations. There is no winning - only increased variety and intensity of mind bending

sights and sounds to reward your cooperation with your fellow travelers.

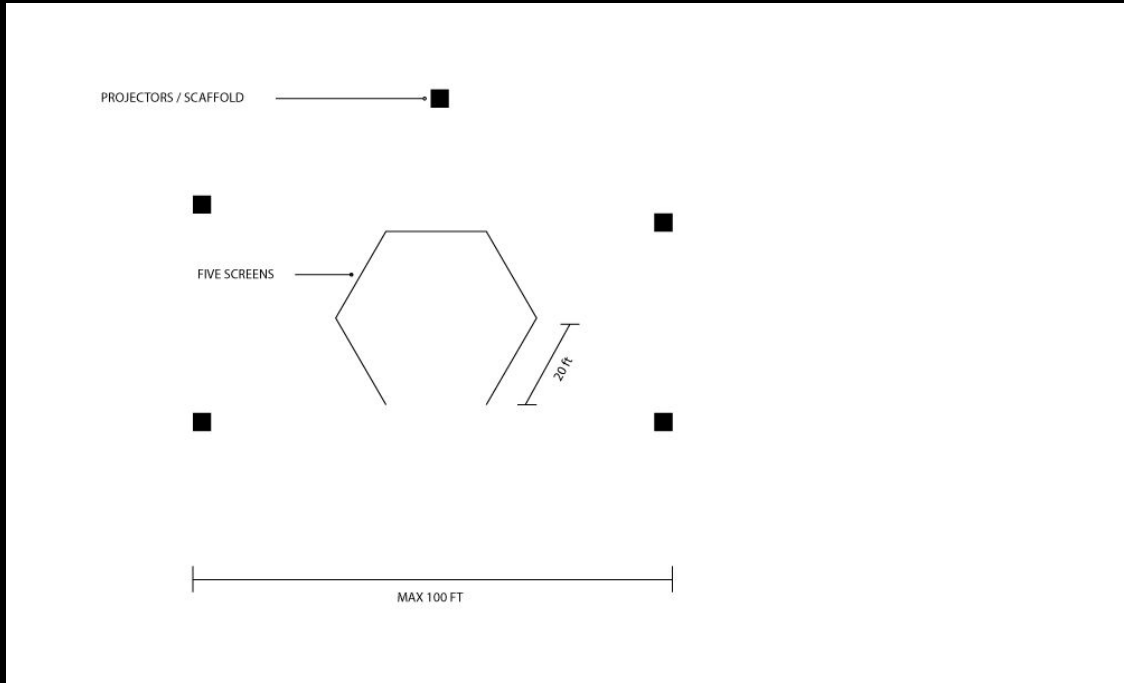
More than just adding flavor to the festival experience, the FNC will be an unforgettable aspect of an already incredible life experience. A chance to put away our phones for a while and have technology encourage and reward face to face communication in a fun way.

That said, if participants provide an email address, we will happily send them HD video of their experience within the chamber to share with their friends and followers. Experience videos could be captured from the motion tracking cameras already in place and tastefully watermarked with the event company or sponsor's branding.

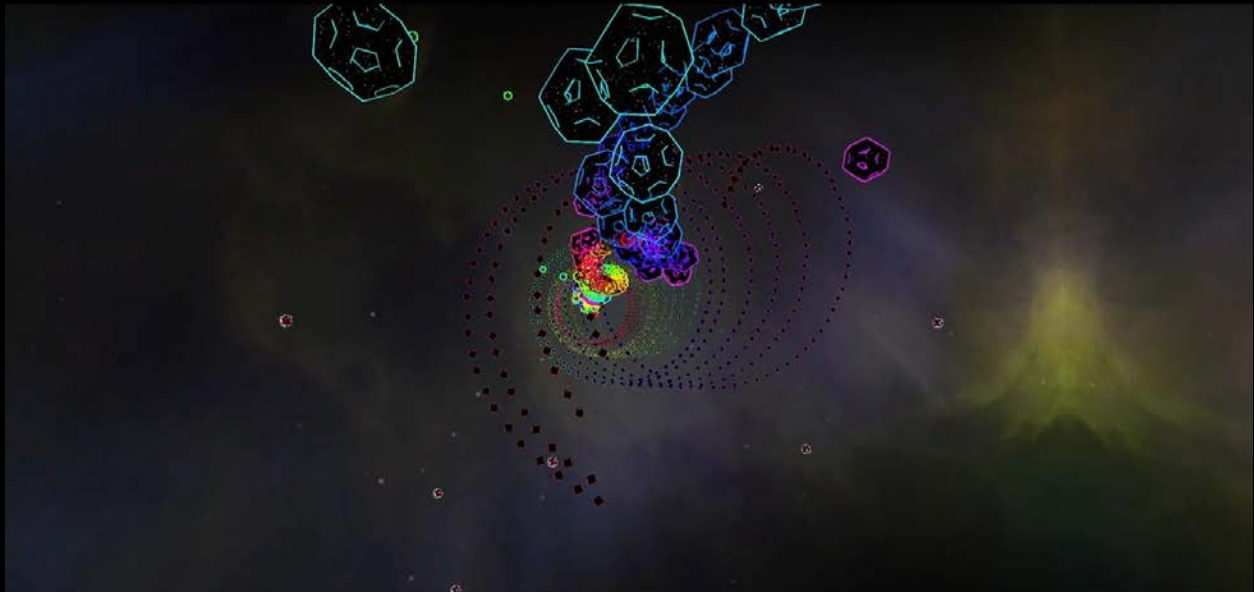
▶ [DEMO VIDEO \(2:00\)](#)

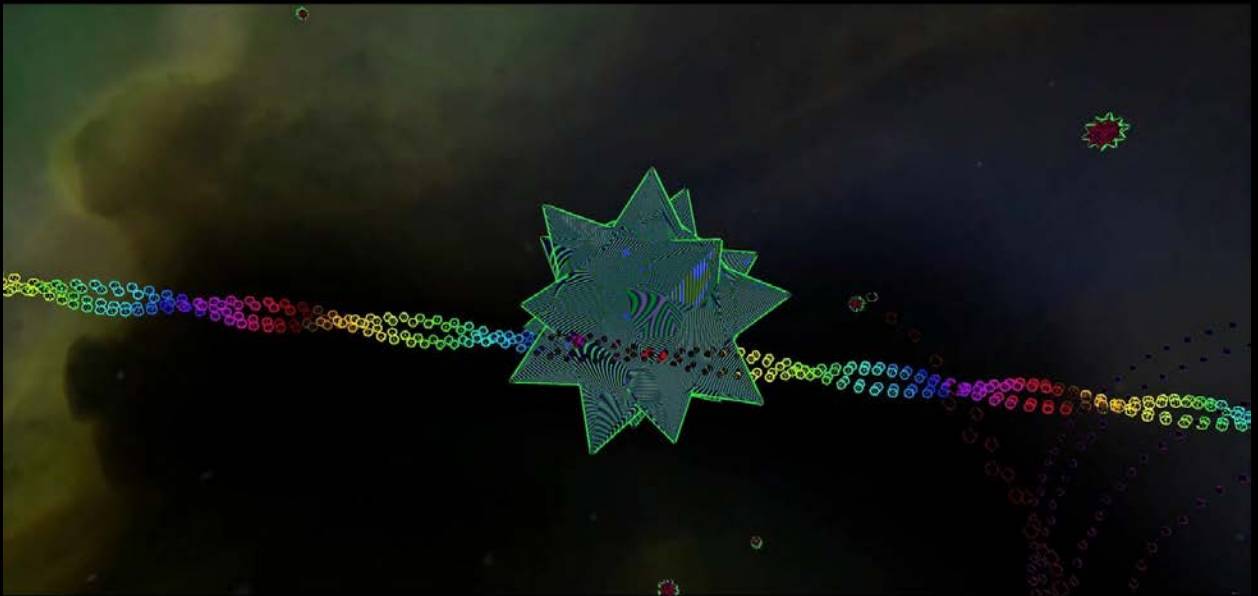
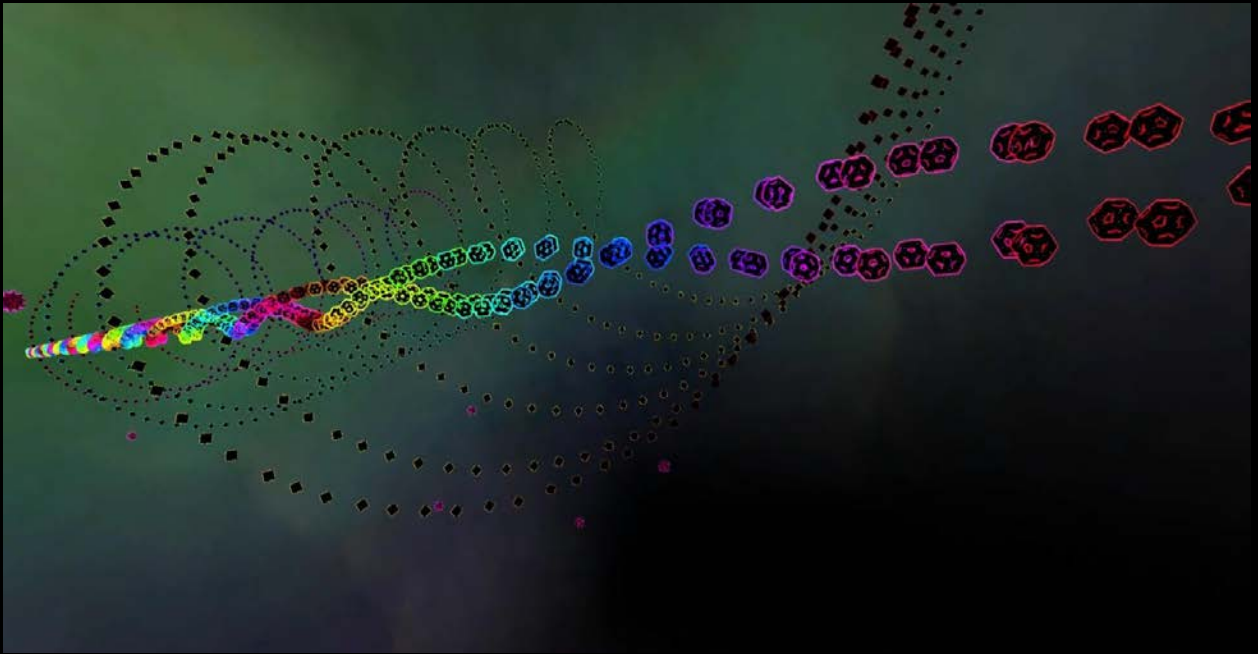


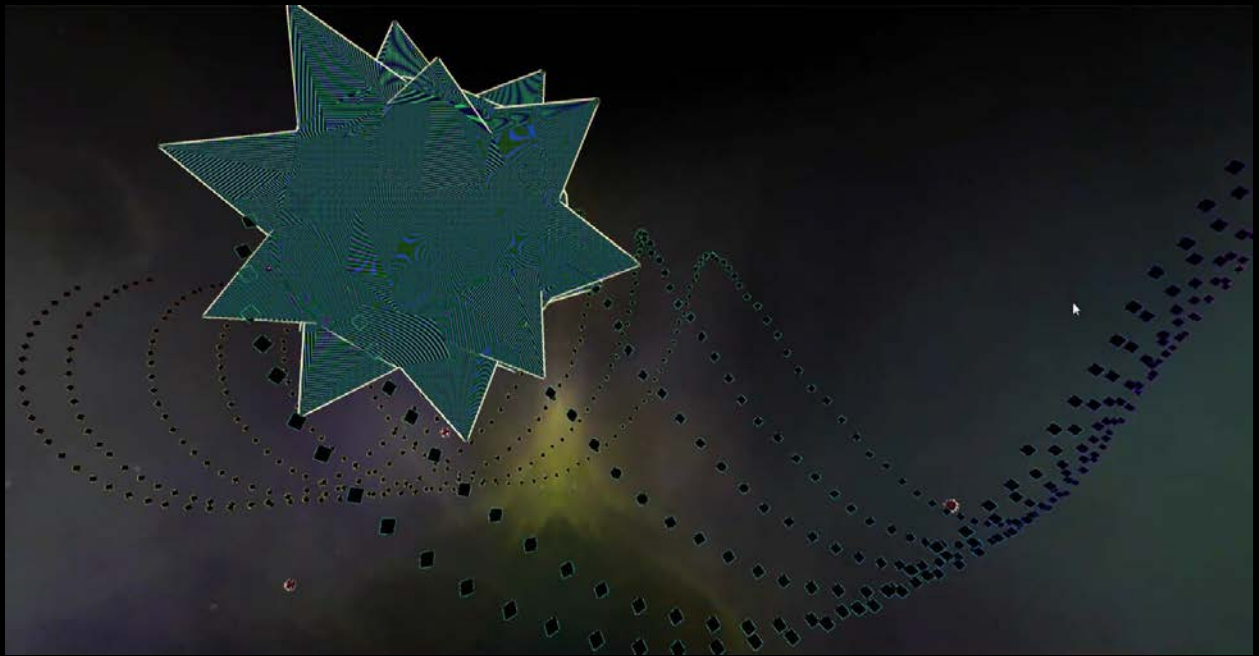
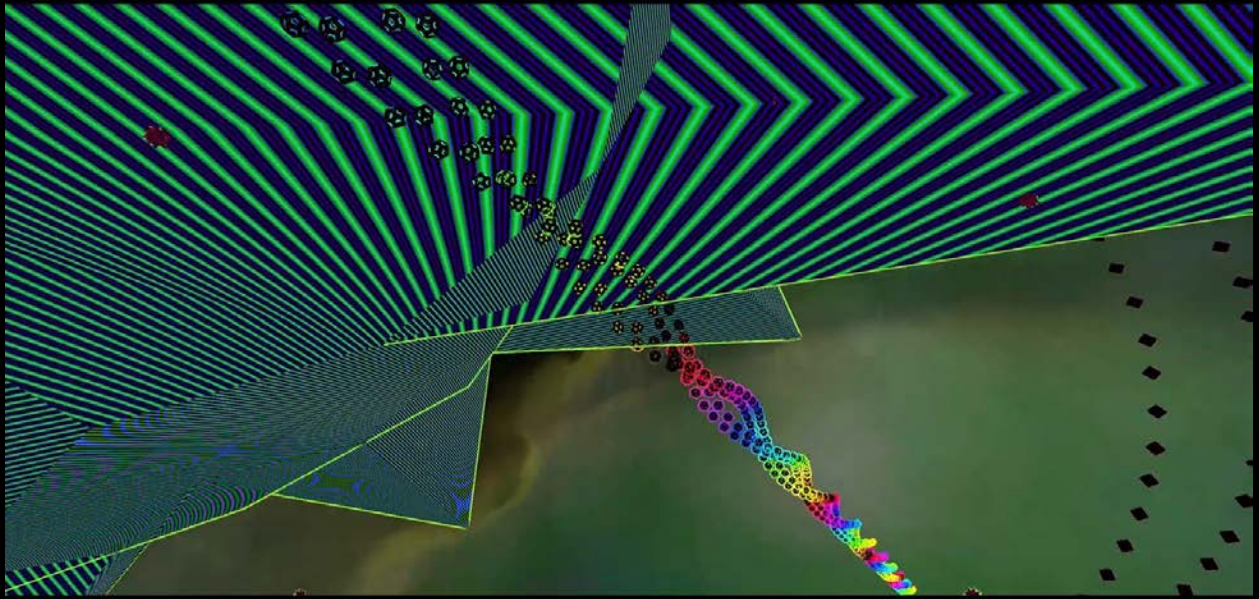
## Floorplan



## Screenshots from demo video









▶ [DEMO VIDEO \(2:00\)](#)