**Introduction**

Compositional Pattern Producing Networks (CPPNs [1]) are a type of neural network that has been used to create many types of artistic and creative output. The Infinite Art Gallery is a project that uses CPPNs to create various forms of novel art and present them to a player in the form of a game. The evolutionary algorithm NEAT (NeuroEvolution of Augmenting Topologies [2]) was incorporated into the Unity game development environment. NEAT was then used to produce different types of artwork that are presented to the player in a procedurally generated gallery and are continuously evolved based on the player’s choices.

**Related Work**

The Infinite Art Gallery incorporates several previous approaches used in the generation of evolved art, including Picbreeder and Endless Forms. Picbreeder [1] showed that artistic two-dimensional images could be produced by evolved CPPNs. Endless Forms [3] expanded upon Picbreeder to add a third dimension to the inputs and a new output that determined if a single unit coordinate in a three-dimensional space (voxel) was present in the produced form.

**Game Features**

- Two and three-dimensional artwork to explore
- Item pickups add more complexity and features to the evolved CPPNs, influencing the final artwork
- Artwork inventory saves specific CPPNs for later use
- Reversing travel through the gallery rewinds selections, allowing for alternate paths to be explored

**Human Interaction**

With the gallery capable of providing artwork to explore, the next stage is to expose the game to human subjects for evaluation.

**References**

