Rutopia 2
Virtual reality system

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Artist Statement

Rutopia 2 is an art project built for the C-wall virtual reality system. It explores the aesthetics of virtual art in relation to traditional Russian folk arts and crafts such as wood sculpture, toys, and the decorative painting styles of Palekh, Khokhloma, and Dymkovo. The work's aesthetic is based on the generalized outlines, principles of composition, bright colors, and simplified shapes inspired by these styles.

The project presents a magic garden with interactive sculptural trees. It was conceived as a virtual environment linked to a matrix of several other unique virtual environments that together create a shared network community. A series of 3D modular sculptural trees, each consisting of dozens of rectangular screens, appear in the main environment and serve as portals to the other linked environments. Animation of these dynamic tiled trees is an attempt to break through the static flatness of the contemporary tiled-display grids, architectural façades, and surfaces into the perpetually changing 3D sculptural forms of the ubiquitous public network.

Users can "grow" three trees in the island world by moving within the proximity of each tree. Each tree appears as a rapid sequence of flipping and rotating rectangular screens expanding out and upward. Once all the trees are fully grown, their screens turn into windows, and the island changes from monochrome to color. Each window shows a view of the remote environment connected to it. Just as we can look through a window and see the outside, users can look through each of the screens to see remote worlds consisting of imagery found in traditional Russian fairytales and folk art. When they move their heads completely through one of the virtual screens, they enter the connected environments.

Technical Statement

Rutopia 2 was built using Ygdrasil advanced rendering techniques, the Bergen spatialized sound server, OpenGL Performer 3.2, and the CAVE library. It operates on an Intel Linux PC running SUSE 10.0 and connected to an Ascension Flock of Birds tracker. The user is tracked from the stereo glasses and hand Wanda tracker. Participants control the direction of the movement and interaction with the objects by using only a wand interface and no buttons.

The windows of the trees were made using the new Ygdrasil node stencilBuffer. This node acts as a mask covering the areas outside the windows so that only the selected window area allows a view to the other world.

The storyboard sketches were first hand-painted using gouache and watercolor. They set up the color palette, composition, and virtual space layout and served as reference for development of the scene graph. The 3D models were built using the 3D Paint tool in the Maya software. The details of the decorative ornamentation were painted inside the 3D scene and then exported as models with textures. Other textures were individually painted, scanned, and applied on the 3D objects.

ATLAS in silico

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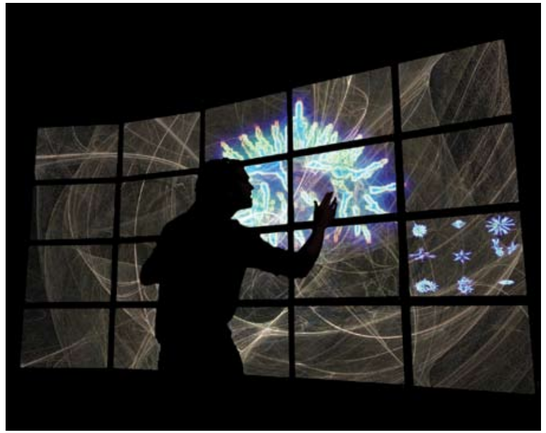

Artist Statement

As genomics digitizes life, the organism and self are initially lost to data, but ultimately a broader meaning is re-attained. ATLAS in silico reflects upon humanity's long-standing quest for an understanding of the nature, origins, and unity of life by interrogating metagenomics and the resultant shift from an organism-centric to a sequence-centric view of nature. In parallel to challenges that Darwin's work on natural selection posed to 19th-century representations of nature associated with concepts of species fixity, vast and abstract metagenomics data pose a fundamental challenge to our ability, in the 21st century, to represent and intuitively comprehend nature.

This work offers an intimate aesthetic encounter with millions of recently discovered sequences from the the Global Ocean Survey and its associated metadata, within an immersive visual atlas. Eliciting an aesthetically impelled metagenomics viewpoint in order to explore alternative modalities for representing nature, it calls out the relationship between data and understanding, and between data about life and the life that it describes.

Technical Statement

The visual atlas is an aesthetically derived multidimensional visualization of metagenomics data from the GOS database. It is situated within a virtual environment that reveals associated metadata. Both the visual atlas and virtual environment are constructed from a custom computer graphics code, including a unique shape grammar that maps genomic data to visual form. The installation employs an infrared motion-tracking system, together with the Varrier 55 tile, a 100-megapixel barrier strip auto-stereoscopic display.

Participants experience the 3D environment without stereo glasses and by moving within the field of view of the motion tracking system, they interact with luminous three-dimensional forms representing millions of GOS sequences. The interaction software framework is built on the extensible and distributed Collaborative Visualization and Simulation Environment (COVISE) system.

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