

Building a concept

What makes a good Virtual Reality project? a Concept.

Before you create a new 3D world, imaginary or based on research, you develop a concept.

You are introducing a new perspective, interpretation, justification, evaluation, an argument or an idea.

Building a concept

Your concept is written in the project abstract/statement/proposal and visualized in a series of sketches/mockups/storyboards.

It is a specific, detailed statement that reveals your perspective, and, like any good concept, your perspective must be one that is debatable.



Examples

You would not want to make a concept of this sort:

This project aims to create an virtual world that could be explored by an individual. The concept of this environment will include a dark-colored underwater world and ice.

That doesn't say anything-it's basically just a description of any VR environment and is not unique. It says little that's not already self-evident.

The concept needs convey the purpose / meaning of the project, and only be partially descriptive.



Examples

A better concept would be this:

This project aims to recreate an underwater ice environment, based on the actual data collected from an autonomous underwater vehicle's (AUV) mission. The concept of this project is to advance oceanographic research in search for life under the icy surfaces of Europa and Antarctica.

That is debatable, creative and controversial argument. The rest of a statement will be an attempt to show, using specific examples from the research and input from scientists, (1) *How* this project can help to advance this research, (2) *Why* the project uses Virtual Reality technology as a medium.



Under the Virtual Ice



The search for life on other worlds starts here. The SIMPLE (Sub-ice Investigation of Marine and Planetary-analog Ecosystems) project takes one of the first steps in preparing to search for life under the icy surface of Europa by exploring the waters under the ice-covered lakes of Antarctica. It allows multiple remote collaborators to virtually recreate a mission based on data collected from a robot's numerous sensors during an expedition to the McMurdo ice shelf. Researchers can “swim” through the virtual lake-bed at real-life scale and view sensor data.



StripeSpotter



Turns wild zebras into trackable barcodes. All this information is stored in a database that allows researchers to directly identify and track particular animals without ever having to get too close.



Music Instruction in VR / AR



This project's purpose was to investigate the ability of virtual reality to teach music. An interface was created that shows the user the correct bow direction, tempo, fingering, and sheet music. Additional features included adjustable tempo and a metronome that can be turned on and off. The application was helpful since the user could get visual cues from the graphics while still keeping an eye on his/her instrument.

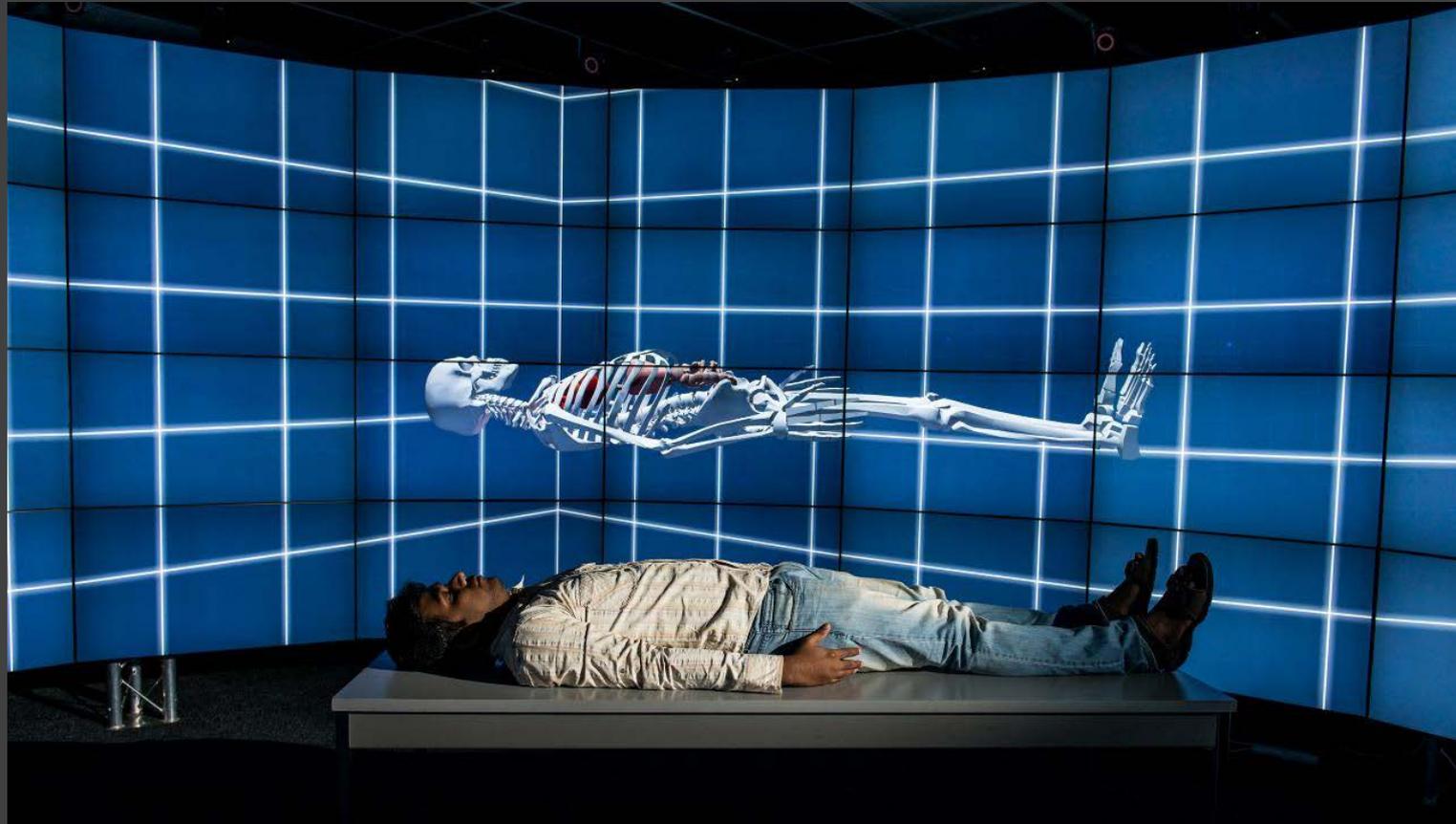
RehabJim: A Third Person Approach To Virtual Reality Biomechanical Rehabilitation



RehabJim is a third-person “serious” game for the rehabilitation of upper limbs in post-stroke patients, with particular emphasis on reaching movements. Utilizes a Kinect controller in the CAVE2™ Hybrid Reality Environment.



Virtual Reality for Medical Training



To show medical illustrators and educators the value of virtual reality for medical training, the EVL at UIC mocked up a 3D skeleton, complete with body organs, including the heart, lungs, and intestines, that students could manipulate on the walls of the CAVE2 system. Datasets used are publicly available on the web.



SpiderSense



SpiderSense is a UIC prototype wearable suit that enables users to sense (without seeing) obstacles around them. Like the comic book character Spider-Man whose skin tingles at approaching danger, SpiderSense augments human ability - it can potentially help a visually impaired person or a first responder navigate their environments.

<https://www.youtube.com/watch?v=-0hCZ22ag44>

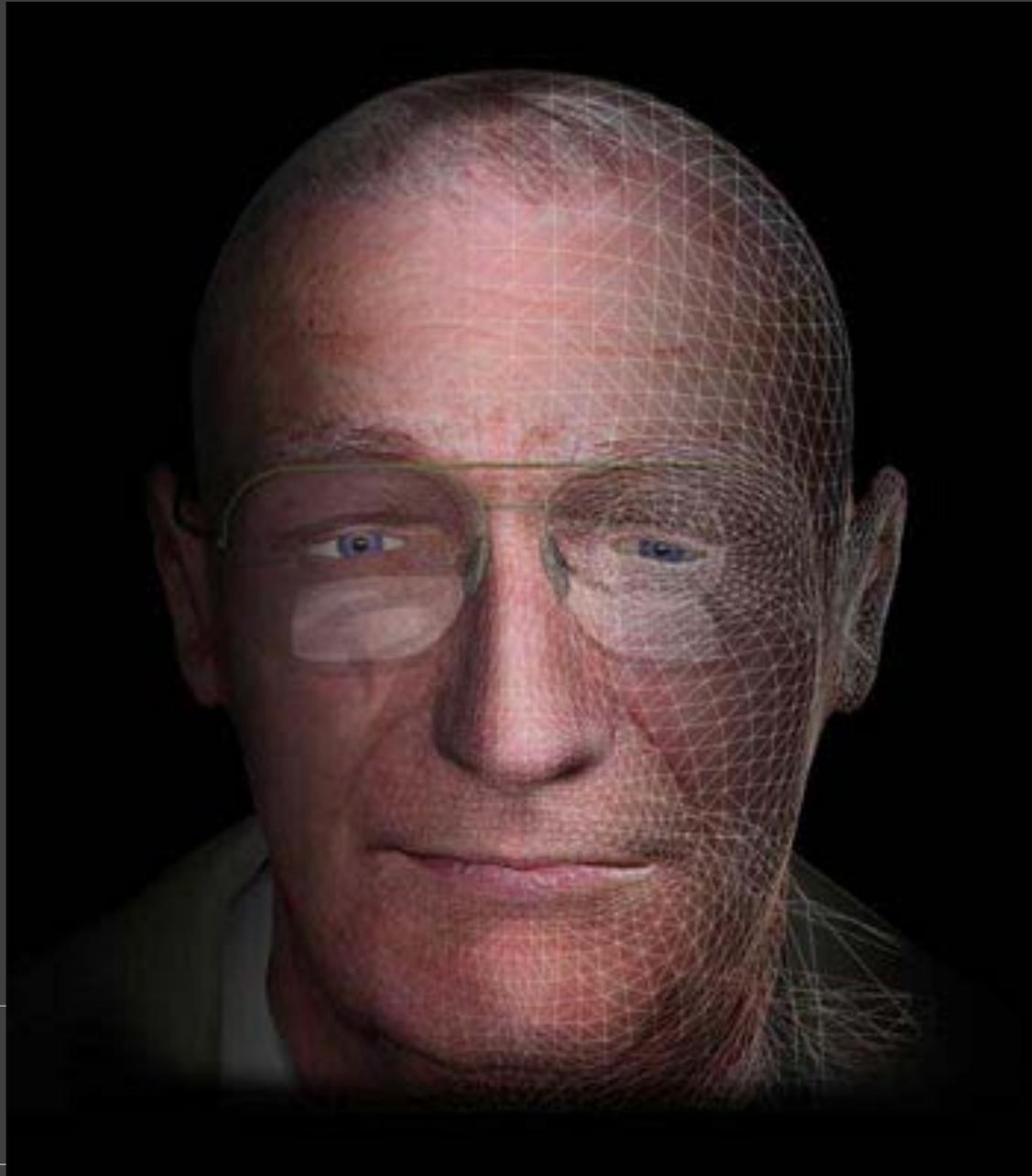
Into the (virtual) jungle



Researchers can use sensor technologies to track animal movement and capture rich data about a habitat. This app explores how virtual reality might help animal behavior researchers view, explore and step inside their data, by recreating the Barro Colorado Island, a research habitat in Panama, in the CAVE2. The app uses data from lidar scans and aerial photos. This visualization will allow users to stand on the ground, leap through the trees or fly above the canopy to observe how tracked animals forage for food.



Avatar - a Virtual Human



The research project LifeLike aims to design and develop a lifelike computer interface, called an avatar. The focus has been on the recreation of a visually compelling digital version of a real human, Dr. Alexander Schwarzkopf. The prototype system is designed to help researchers prepare for a proposal using interactive questions and answers with the avatar. LifeLike application renders an avatar fast enough to accommodate real time interaction as well as produce photorealistic details similar to a real person.