VR Worlds—use as included or modify

BIOPAC virtual worlds are ready to run without programming. The source code is also available for user customization and further development of the world *(see page 12)*. Two tutorial demonstration worlds— Iowa Gambling Task and Pit—are detailed and fully documented, including source code, to greatly assist users who wish to create or modify the existing environments and start creating their own.

BIOPAC has a selection of compatible 3D graphical models and sound files to further expedite the development process. The VR software uses a simple scripting language to create rich 3D environments and rapid results. BIOPAC will also undertake the creation of custom worlds, ensuring that you get the precise functionality your protocol demands.

BIOPAC VR Systems provide users with a variety of environment options and time horizons.

- Use the BIOPAC worlds and start working immediately
- Customize the BIOPAC worlds to personalize the environment
- Follow the detailed tutorials with source code to create your own worlds
- Employ BIOPAC to develop a custom ready environment

Movement can be controlled by the experimenter and/or participant's physiological reactions.

Data analysis is simplified with automatic scoring of the data. The current state of the environment, participant, and/or audience is marked in the physiological data record.

ACROPHOBIA — VRWORLD-ACROPHO

Participants ride a construction elevator in an environment designed to emphasize the perception of height. There are seven floors (different heights) for the elevator and two modes of the experiment:

Subject feedback—Physiological responses are fed back to the VR world and progress to the next level is allowed/prohibited based on SCR and SCL response levels.

Experimenter-controlled—Progress to the next level is initiated by a keystroke from the experimenter.

Physiological responses are analyzed in real-time to determine when the participant should move to the next height level.

FEAR OF FLYING — VRWORLD-FLYING

Participants are immersed in a virtual airplane and experience take-off, normal flight, and turbulence. Tactile feedback is employed (via the HDS100 haptic delivery system) to enhance the physical experience. The experimenter can trigger events, such as take-off sequence, turbulence, cabin announcements, etc.

Order Worlds separately or combine Acrophobia, Flying, Public Speaking, and Cue Reactivity with VRWORLDS-PACK

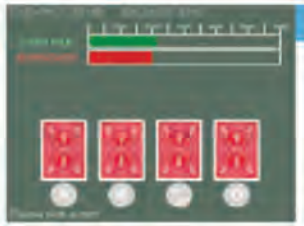
Custom VR worlds available—or create your own

PUBLIC SPEAKING — VRWORLD-SPEAK

In this social anxiety environment, participants deliver a speech from behind a podium. The speech text is presented on a display on the podium and can be scrolled via a joystick. Audience size can be controlled. The audience state or attitude—e.g., bored, interested, rude, or indifferent—is set by the researcher during the experiment. Audience behavior is defined using avatar animations and is not limited to the animations included with the environment.

CUE REACTIVITY — VRWORLD-CUE

Participants are exposed to a sequence of rooms along a corridor that contain different stimulation environments. Neutral environments and stimulus environments are included, and the environments can be expanded. The number of rooms as well as the objects in the rooms can be modified. This paradigm can be used to investigate the relationship between addictions/craving, physiological response, and the way the stimulus is presented in the environment. For instance, observe how participants react to cigarettes on a table.



IOWA GAMBLING TASK

Participants follow the classic Iowa Gambling Task experiment, in which they choose between decks of cards with unpredictable payoffs—reward or penalty, net gain or loss. Card appearance and win/lose probabilities can be modified. Provided in English and French. Skin conductance response before and after participants make a choice can easily be analyzed.

- *Tutorial demonstration world—includes source code.*

PIT

The Pit is a great demonstration of the power of virtual reality. The world displays a pit in the ground with a plank of wood placed across it. Participants must walk across the plank to safely reach the other side of the pit. As they walk across the virtual plank, the world tracks their movement and updates the display. A Precision Position Tracker system is required to monitor subjects as they walk across the plank.

- *Tutorial demonstration world—includes source code.*