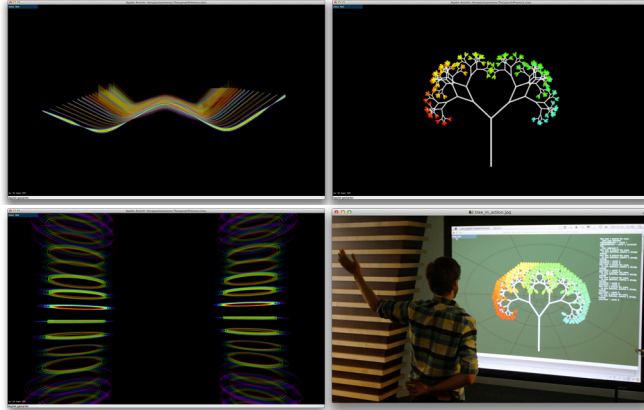


# AVUS neurologic rehabilitation system



The AVUS (abstract virtual environment for stroke rehabilitation) utilizes abstract and fictive visualizations of human upper body movements to foster exercise and motor learning after a stroke. The patients' movements are captured with a Microsoft Kinect sensor and transformed using the Processing framework ([processing.org](http://processing.org)) to generate aesthetic visuals with different levels of abstraction. Continuous interaction is provided meaning that every movement results in an immediate visual effect. During the therapy the patients explore in a self-directed manner their possibilities to produce various shapes. At the same time they exercise at their limits of motion. Music is played and used as input to manipulate the visualizations, too. The concept aims to allow for a high level of presence, which helps to concentrate on the virtual effects of the movements.

A pilot study with 8 patients supported the clinical applicability of the system. Qualitative interviews gathered a wealth of information on the subjective experience of the patients. Functional measures pointed towards a positive effect of the treatment on motor behavior and a relationship between the efficacy and the experienced sense of presence.

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