Auditory orientation training system for the people with visual impairment
Orientation and mobility training using sounds as clues can be performed with a laptop PC

We have developed an auditory orientation training system for the people with visual impairment, with the cooperation of Tohoku Gakuin University, Tohoku Fukushi University, the National Rehabilitation Center for Persons with Disabilities, and others.

This technology artificially reproduces the clues to auditory orientation used by a visually impaired person during walking, such as the movement and reflection of sounds, by using three-dimensional acoustic technology. Through downsizing and cost reduction, we have developed it into a practical training system that allows a visually impaired person who has just started orientation and mobility (O&M) training to receive auditory orientation training safely and effectively. Starting on April 11, 2013, the software for the training system is available for free to people and organizations concerned with the visual impairment. (http://staff.aist.go.jp/yoshikazu-seki/AOTS/index.html)
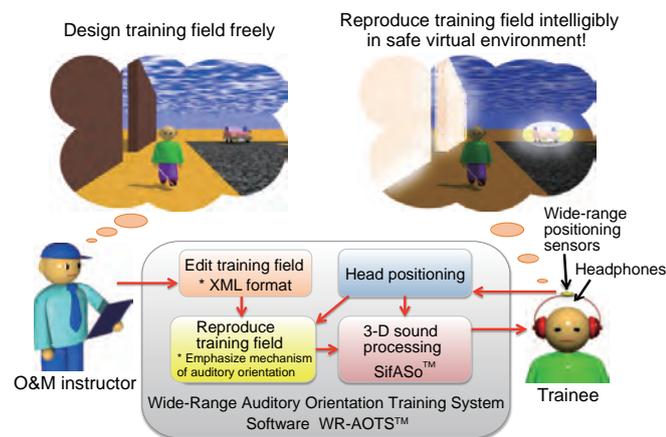
Use of this system is expected to help improve the safety and efficiency of rehabilitation and special needs education and promote participation of the people with visual impairment in social activities.

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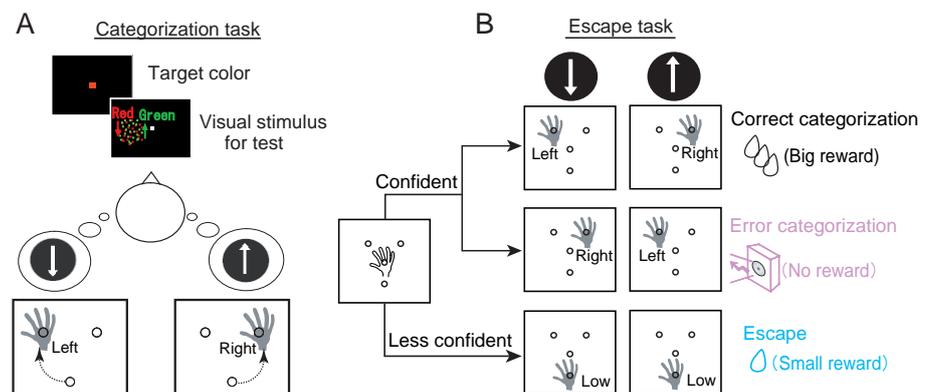yoshikazu-seki@aist.go.jp

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How the auditory orientation training system works
The system reproduces the training environment designed by the instructor in an easy-to-understand and safe manner by using three-dimensional acoustics.

Elucidation of brain mechanisms underlying sensory awareness
Neural activities for "I've got it" in the pulvinar

We have introduced an experimental paradigm to assess confidence in subjects, such as animals and infants, who cannot report verbally. This is an opt-out task, where the subjects are given three options including two risky discriminative options (one is correct for a big reward and the other is error for no reward) and the third option (always associated with a small reward). We have conducted an experiment using a monkey. As the visual targets to be discriminated in the task got more ambiguous, the monkey gave up risky options and chose the third safe option more frequently. When the pulvinar reponses to the identical visual targets decreased, the monkey tended to choose the safe options. Recent studies suggest that our conscious percepts have two aspects; one involves contents and the other involves the confident feeling that we certainly know the perceived world. The current results provide evidence that the pulvinar encodes a subject's confidence in visual awareness.

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Two kinds of behavioral tasks for monkeys