

 FULL TITLE	Perception and Action in Space
ACRONYM	Peract
COORDINATOR	Prof. Hanspeter Mallot (Eberhard Karls-Universitaet Tuebingen)
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KEY WORDS	Visually guided behaviour, Eye movements, Functional Perimetry, Orientation , Spatial Cognition, Neurophysiology, Motor learning, Statistical learning theory
SUMMARY	<p>Perception and Action in Space (PERACT) The proposed Research Training Project focuses on the production of adaptive spatial behaviour based on the interplay of perception, central information processing, memory, learning, and motor action. The processing stream from perception to action will be studied on various levels. By quantitative measurements of behaviour of freely moving humans and animals, as well as by synthesizing navigation and grasping with bio mimetic robots, we will address the overall performance. On a finer level, sensory contributions are investigated using psychophysical techniques, e.g. by varying the available sensory information, as well as by tracking movements of the eyes. Neural mechanisms are studied by quantifying the behavioural deficits resulting from brain damage in patients (occipital and parietal lobes) or from experimental cooling of parts of the parietal lobe in monkeys. Single cell electro physiology and functional brain imaging will be used to investigate neural mechanisms in the normal brain. Finally, statistical learning theory will be employed to study learning of sensor motor coordination and recovery after brain damage. Understanding of behaviour in an action-perception context has strong consequences for neuropsychological diagnosis, neuron-prosthetics, man-machine interfaces, and bio mimetic robotics. Early stage researchers will receive training in up-to-date methods in cognitive and computational neurosciences provided by the participating labs. In addition, the Tubing Graduate School for Neural and Behavioural Sciences, which offers a comprehensive Master and PhD program in English language, will be open to the fellows. Additional training includes a two-weekly seminar series, a retreat (summer school), and a series of one or two day excursions and courses. This program will be arranged in collaboration with the Graduate Research Training Program on Cognitive Neurobiology.</p>
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BUDGET	1 115 556 €
PROJECT WEB-SITE	http://www.peract.net