

Visual Computing Colloquium

December 14th, 10:30am, C061

Self-motion and self-orientation: studies using Virtual Reality and the human centrifuge



Wednesday, December 14th, 2016, 10:30am

Visual Computing Lab C061
Bonn-Rhein-Sieg University of Applied Sciences
Grantham-Allee 20, 53757 Sankt Augustin

Abstract

I will talk about two of the projects that I have carried out in collaboration with Bonn-Rhein-Sieg University of Applied Sciences. The first uses Virtual Reality to determine how optic flow tells us how far we have moved. We measured perceived travel distance when simulating motion moving down a corridor while looking straight ahead (radial flow) compared to when looking sideways (laminar flow). Data were modeled by the output of a leaky spatial integrator and suggested independent processing of the two types of flow. The second, using the Human Centrifuge, addresses the question, how much gravity do we need to determine the direction of UP? We used the Short Arm Human Centrifuge (SAHC) at DLR Aerospace Center to simulate gravity along the long axis of the body and determined its effect on the perception of character the identity of which depends on the direction of up. Simulating 1g gave results equivalent to when standing. The threshold for simulated gravity to have a perceptual effect was 0.15g, close to that on the moon.

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Vita

Laurence Harris received his PhD from Cambridge University in 1979. After post-docs in Durham (UK) and Dalhousie (Canada) he became a lecturer in Physiology at Cardiff University. He moved to York University in Canada in 1990 where he is presently the director of the Centre for Vision Research. His research interest concerns how the different senses are combined to generate our perceptions. Examples include the visual and vestibular system's role in orientation and self motion perception; vision and hearing's role in localizing events in space and time; and how knowledge of our body affects our perception of stimuli. He is particularly interested in the way these combinations can adapt to changing demands brought about by unusual environments which he creates using various means including virtual reality, the microgravity of space, human centrifuges, and moving rooms.

Additional information can be found at:
<http://www.yorku.ca/harris/>

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