

# **Embodied perception in brains and machines**

Ehud Ahissar

Weizmann Institute, Department of Brain Sciences, Rehovot 76100, Israel

[Ehud.ahissar@weizmann.ac.il](mailto:Ehud.ahissar@weizmann.ac.il)

## **Abstract**

What does it mean for a brain to perceive? Brain research shows that sensation is primarily active – sensation via sensor motion. It also teaches us that a brain and its environment maintain continuous dynamic processes via brain-world closed loops. Closed loops are difficult to understand from within, that is, by introspection. On the other hand, studies of biological perception from an external point of view, using human or animal models, usually leave space for ambiguous interpretations. We thus turn to machine perception – we try to synthesize artificial perceivers that implement active sensing and closed-loop perception in order to see what can and what cannot work, and what yields biological-like perception. I will describe our on-going research with brains and machines and our current understanding.