VolkswagenStiftung

Integrated models of cognitive and physical human-robot interaction (iModHRI)

Initiative: Kurswechsel – Forschungsneuland zwischen den Lebenswissenschaften und Natur- oder Technikwissenschaften

Ausschreibung: Planning Grants

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Robots are entering our daily lives and directly interact with us. Although human-robot interaction (HRI) is a strongly multidisciplinary field, cognitive and physical interaction are researched separately. Expecting that an integrated modeling approach will distinctly improve joint cognitive decisions and physical robot assistance, our planning grant project works towards an innovative expertise development concept (EDC). To push the boundaries of the field, we combine our complementary expertise in cognitive modeling, musculo-skeletal modeling and control, as well as user-centered HRI design. We envision the planned EDC to combine intensive group-level exchange, an HRI research example (e.g., robotic augmentation in eating Schnitzel and fries), and dissemination. To this end, we implement a virtual reality version of this scenario and identify model interfaces for a unified HRI modeling framework in this planning grant project. Working towards the planned EDC, we prepare novel concepts for interdisciplinary discourse and teaching to motivate structural changes supporting inter-institutional collaboration.

Projektbeteiligte

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Human-Robot Body Experience: An Artificial Intelligence Perspective
Four considerations on interdisciplinary learning at the boundaries of human and engineering sciences
Cognitive models of limb embodiment in structurally varying bodies: A theoretical perspective
A Commentary on Towards autonomous artificial agents with an active self: Modeling sense of control in situated action