## Scientific Conference & DGR Days



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## **Machine Learning is Not Intelligence**

Friday, October 8, 2021 10:00 AM (1 hour)

<strong>What's Missing? And How We Might Create a Science of Intelligence</strong><br>
No other community has laid a stronger claim to the term Artificial Intelligence than the machine learning
community. But truth be told, we don't really know the mechanisms underlying natural intelligence—and
therefore we cannot really know what underlies artificial analogue is either. What do we know then about intelligence? We know how to measure intelligence in humans, we know that intelligence is predictive of many
real-world capabilities, we can list properties we attribute to intelligent behavior, but we remain without a
clear constructive understanding of the computational underpinnings of intelligence. Probably everybody
agrees that what happens in a human body and brain is fundamentally different from any artificial system we
have created thus far—and that the resulting behavior is also fundamentally different.

In this talk, I will present the Cluster of Excellence "Science of Intelligence" which seeks to find constructive explanations of intelligence. It brings together researchers from the study of artificial intelligence (robotics, computer vision, machine learning, AI, control) and natural intelligence (psychology, behavioral biology, neuroscience, philosophy, educational science). It is based on the assumption that only by merging the perspectives of relevant disciplines we can obtain a complete and valid understanding of intelligence. Some of the ongoing research of "Science of Intelligence" provides evidence for why a recipe for "true" artificial intelligence will include more than one ingredient. I will talk about what some of these ingredients might be and present research in support of their relevance to intelligent behavior.

Spoiler alert! These ingredients will include things other than machine learning (but, of course, machine learning is probably one of the ingredients).

<h1>Bio</h1>

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<img src="https://indico.kit.edu/event/2389/images/1450-Portrait<br/> Brock.jpg" alt = "PortraitBrock" >

<strong>Oliver Brock </strong> is the Alexander-von-Humboldt Professor of Robotics in the School of Electrical Engineering and Computer Science at the Technische Universität Berlin, a German "University of Excellence". He received his PhD from Stanford University in 2000 and held postdoctoral positions at Rice University and Stanford University. He was an Assistant and Associate Professor in the Department of Computer Science at the University of Massachusetts Amherst before moving back to Berlin in 2009. The research of Brock's lab, the Robotics and Biology Laboratory, focuses on robot intelligence, mobile manipulation, interactive perception, grasping, manipulation, soft material robotics, interactive machine learning, deep learning, motion generation, and the application of algorithms and concepts from robotics to computational problems in structural molecular biology. Oliver Brock directs the Research Center of Excellence "Science of Intelligence". He is an IEEE Fellow and was president of the Robotics: Science and Systems Foundation from 2012 until 2019.

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## Session Classification: Keynotes