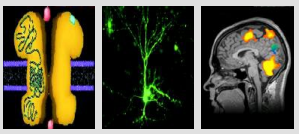
RUHR-UNIVERSITÄT BOCHUM

RUB

IGSN / SFB 1280 / BIOME

CONFERENCE



EXTINCTION LEARNING

April, 23rd – 24th 2024

Session 4 **Modelling neural dynamics**

FRANZISKA BRÖKER

Neuroscience Institute, Carnegie Mellon University, Pittsburgh, USA

Supervised and unsupervised learning in humans and machines

When humans and machines learn, they rarely have access to supervision or explicit feedback on their performance. To boost performance, machine learning has developed powerful algorithms that also harness unsupervised experiences which has led to much of its recent success. Since humans are thought to share information processing capabilities with machines, it seems uncontroversial to expect that humans, too, could benefit from unsupervised learning. But surprisingly, this is not unequivocally supported by empirical studies. Across various learning domains results demonstrate that unsupervised learning is not guaranteed to boost human performance. This raises a critical question: under what conditions does unsupervised learning help humans, and when is supervision necessary? In this talk, I will present insights into why unsupervised learning fails sometimes, what role representations play in this, and how supervision can help. I will also discuss how this might relate to learning from other sorts of feedback.