TECHNISCHE UNIVERSITÄT
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CHEMNITZ

Fakultät für Informatik
Professur Künstliche Intelligenz

Informatik Kolloquium

Vortrag von Herrn Prof. Dr. Jochen Triesch

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Abstract:

Current machine learning systems consume vastly more energy than biological brains. Neuromorphic systems aim to overcome this difference by mimicking the brain's information coding via discrete voltage spikes. However, it remains unclear how both artificial and natural networks of spiking neurons can learn energy-efficient information processing strategies. Here we propose Predictive Coding Light (PCL), a recurrent hierarchical spiking neural network for unsupervised representation learning. In contrast to previous predictive coding approaches, PCL does not transmit prediction errors to higher processing stages. Instead it suppresses the most predictable spikes and transmits a compressed representation of the input. Using only biologically plausible spike-timing based learning rules, PCL reproduces a wealth of findings on information processing in visual cortex and permits strong performance in downstream classification tasks. Overall, PCL offers a new approach to predictive coding and its implementation in natural and artificial spiking neural networks.

Vortrag

"Predictive Coding Light"

13. März 2025, 16.00 Uhr

Technische Universität Chemnitz, Straße der Nationen 62, Raum: A12.336 (alt: 1/336)

Alle interessierten Personen sind herzlich eingeladen.