

Dynamics in neural networks composed of predictive neurons

Artur Luczak

Understanding how the brain learns may help us to build machines with human-like intellectual capacities. Recently, we showed that the ability of a single neuron to predict its future activity may be a crucial element of the learning mechanism in the brain. We tested this predictive neuron idea in neural network simulations and in data recorded from awake animals. I will discuss how predictive neurons may be the key building element of biological intelligence, and how it may help to explain neuronal dynamics at the whole brain level [1,2].

References

- [1] A. Luczak, BL. McNaughton, Y. Kubo. *Neurons learn by predicting future activity*. Nature machine intelligence 4.1 (2022)
- [2] A. Luczak, Y. Kubo. *Predictive neuronal adaptation as a basis for consciousness*. Frontiers in Systems Neuroscience 15 (2022)

First Author:	Artur, Luczak
Affiliation:	<i>Canadian Centre for Behavioural Neuroscience Department of Neuroscience , University of Lethbridge AB, Canada</i>
e-mail:	Luczak@uleth.ca