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Introduction to Spiking Neural Networks

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Artificial Neural Networks (ANNs) such as Convolutional Neural Networks (CNNs) or Recurrent Neural Networks (RNNs) have become the building stone of deep learning models for complex tasks like image recognition or speech recognition. A perceptron model, the core cell of the ANNs, has been inspired by the neural processes in the human brain. However, the biological neural dynamics are much more complicated and differ significantly after a closer look. In this session, we present the idea behind the Spiking Neural Networks (SNNs) - biologically-feasible spiking neurons with rich temporal dynamics and high-power efficiency.

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