TOC

What is the course about ?

- Information processing in the brain
- Analytical descriptions of neural computations
- Learning and plasticity
- Encoding information in the brain
- Neural network models
- Neuromorphic engineering

We are now entering the era of “edge intelligence” in which dedicated cognitive “chiplets” will be used to provide intelligence to a multitude of edge-computing devices

- Today's largest computing systems exceed the capacity of brains, but need far more power

- Complexity of nervous systems is not matched in computer simulations

Overview of the brain

Brief history of neuroscience

Brain vs computer

Organization of the brain

Levels of description

Resting potential

Passive membrane

Action potential

Synapses

The Neural Code

Learning and plasticity

Substrates of neural plasticity

The hippocampus and spatial memory