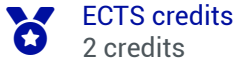


Computational Neurosciences



Presentation

Prerequisites

- Linear algebra, probability, and statistics
 - Algorithms and programming (Python)
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Learning objectives

By the end of this course, students should be able to:

- Understand the fundamental principles of computational neuroscience.
 - Model individual neurons and neural networks.
 - Apply computational neuroscience concepts to solve problems in engineering and artificial intelligence.
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Description of the programme

Computational neuroscience is a broad research field at the intersection of neuroscience and computer science.

Studying the nervous system from a computational perspective has two key goals:

- Explore bio-inspired alternative computing mechanisms (distributed computing, neural networks, event-driven programming).
- Understand brain function, from the representation of the external environment and internal processes to the operations performed on these representations.

The lecture is divided in 2 parts

I- Neural Coding.

- Decoding and Interpretation of Neuroscience Data
- Binary coding
- Rate coding
- Spike-based coding

II- Neural networks:

- Plasticity and learning
- Perceptron theories
- Attractor networks

- Autoencoders and generative networks

Total des heures

0h

Useful info

Name responsible for EU

Lead Instructor

Emmanuel Dauce

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