

BIO-693(6)

State-of-the-Art Topics in Neuroscience VI (2018)

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Cursus	Sem.	Type
Neuroscience		Obl.

Language of teaching	English
Credits	1
Session	
Exam	Written
Workload	30h
Hours	24
Courses	24
Number of positions	60

Frequency

Every year

Summary

The goal of the course is to increase the knowledge in the fields of motor control and neurorobotics. The students will acquire knowledge about state-of-the-art discoveries in motor control in biological and artificial/robotic systems.

Content

Students will be introduced, by experts in the field, to fundamental concepts and recent findings related to the neural and artificial control of behavior and movement. The course will not only cover neurobiology as major focus, but also robotics. The students will be exposed to novel approaches and methodologies in both animal and artificial systems:

- Action selection in rodents
- Decision-making in rodents
- Adaptive motor control in rodents
- Whole brain and behavior simulations
- Creating brains to understand brains
- Computational models of sensorimotor control and the cerebellum
- Control theory
- Memories, sequence learning, spatial cognition in neuromorphic cognitive robots
- Active sensing in robots
- Action selection in robots
- Biomimetic robotics
- Multimodal integration in insect-inspired robots
- Models of insect motor control
- Measurements of insect motor control circuits

Students will be evaluated by an assignment related to recommended articles and speakers lectures.

The course will take place during 2 days. Dec 3rd/4th

Keywords

motor control, decision-making, action-selection, memory, rodents, insects, models, robots

Resources**Websites**

- <https://bmisymposia.epfl.ch>