



PhD Course “Human and Animal Models for BioRobotics”

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The course introduces principles of biorobotics and specifically of biomimetics, illustrated by case studies where human and animal models are applied in robotics, and provide the students with the opportunity to discuss case studies and to propose their own design of robots inspired to functional mechanisms of human beings and other animals. The course consists of 3 main parts:

1. the first part consists of **lectures** on the principles of bioinspiration and biomimetics, embodied intelligence and neuro-robotics;
2. the second part consists of the discussion of **case studies**, from current literature, in the form of a **Journal Club**: a number of papers will be assigned to the students, organized in groups; each group will analyse one paper and will present it in front of the whole class, so that a general discussion can be held on the significance of the paper with respect to the educational messages of the course;
3. the third part consists of a **project work** by the students: still organized in groups, they will challenge themselves in designing a novel robotic system that encompasses some of the principles learned in the course. This constitutes the final examination.

Course schedule:

- **October 14, 16, 17, 21, 9.30-12.00:** lectures; paper assignment for the Journal Club, assignment of the project work on the 21st;
- **October 28, 29, 30, 15.00-18.00:** Journal Club, per groups; each group is given 10 minutes for the presentation of the paper and 20 minutes for the discussion with the whole class;
- **October 30, from 15.00:** presentation of the project work, in groups, with half an hour assigned to each group (presentation + discussion), with verbalization of the successful completion of the course.

Room: Aula 3, Polo Sant'Anna Valdera, Pontedera