THE BIOROBOTICS INSTITUTE

Sant'Anna
School of Advanced Studies – Pisa

Predictive Robots

MARIE CURIE ACTIONS

WORKSHOP on
Predictive Processes for Motor and Cognitive Development in Robots

Evidences from cognitive sciences and neurosciences suggest that several perceptual phenomena and cognitive capabilities would rely on processes of anticipation of sensorimotor activity.
Different accounts on computational models for predictive processes have been proposed in the literature. This workshop provides an overview of established frameworks of predictive internal models - which are based on the idea that perception is a bottom-up flow of information sourced from sensory receptors - and of more recent proposals on predictive processing - where perception relies on deviations from top-down cortical predictions.
Moreover, this workshops aims at fostering discussions on the role that predictive processes may have in robotics, from supporting motor control and adaptive behaviours to enabling cognitive development.

Organised by Dr. Guido Schillaci as part of the EU-H2020 Marie Sklodowska Curie project "Predictive Robots", this workshop will feature talks from two invited speakers, Prof. Bruno Lara (UAEM, Mexico, and Alexander von Humboldt fellow) and Dr. Alejandra Ciria (UAEM and Humboldt-Universität zu Berlin), and from members of the BioRobotics Institute of the Scuola Superiore Sant'Anna.

Where:
Aula 3, The BioRobotics Institute, Viale Rinaldo Piaggio 34, Pontedera (Italy)

When:
Friday, 22nd November 2019, 11:00am

Agenda
11:00 Welcome by Guido Schillaci
11:10 Internal models and developmental robotics (Bruno Lara)
11:40 Internal models and prediction error dynamics (Alejandra Ciria)
12:10 Predictive processes and the minimal self (Guido Schillaci)
12:30 Combining prediction and adaptation for robot control (Lorenzo Vannucci)
12:50 Brain-inspired algorithms for robot control (Egidio Falotico)
13:10 Conclusions

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