

Embodiment of AI

How robots can interpret environment information and act, consequently

May 11th - 15th 2020, 9:30 am - 6:00 pm

Università della Calabria

<https://bit.ly/2020-embodimentofai>

Elena De Momi, Prof.

DEIB, Politecnico di Milano

elena.demomi@polimi.it

Sara Moccia, PhD

Hang Su, PhD

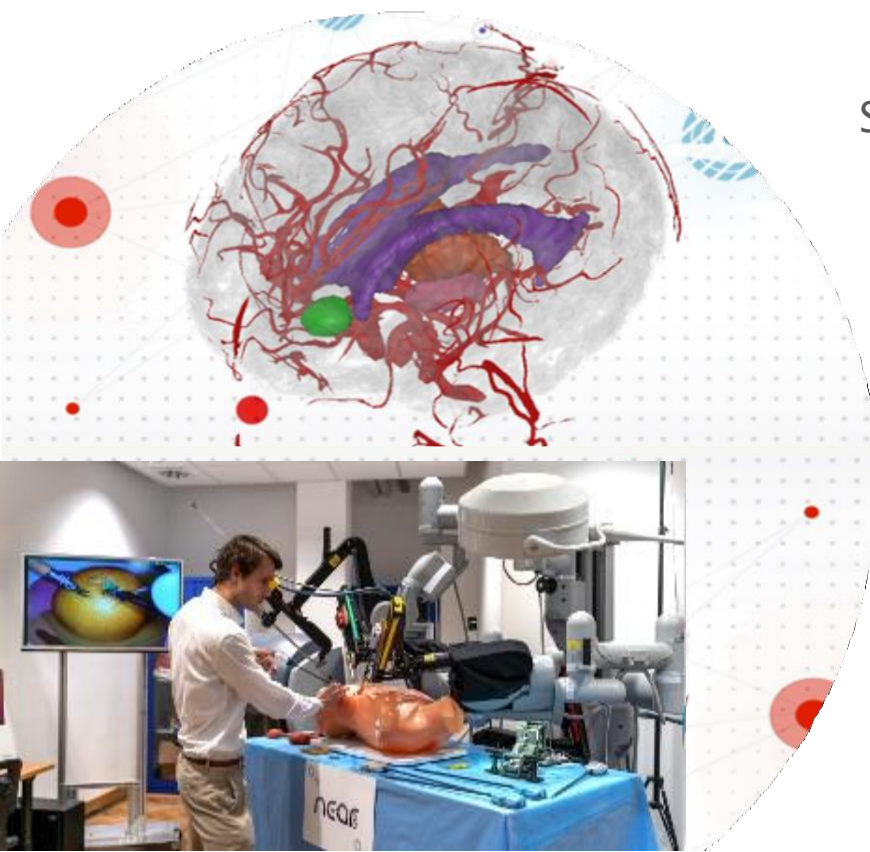
Alberto Favaro

Alice Segato

Zhen Li

Chiara Di Vece

Guido Caccianiga



Theory

Introduction to robotics -
Basics on kinematics, -
dynamics and control
Path planning -
Computervision -



Practice

ROS -
Unity/Rviz -
Reinforcement learning for -
path planning
Natural image detection -
Robot control -
Surgical robot simulation -



Hands on

Students challenge -



UNIVERSITÀ DELLA CALABRIA
DIPARTIMENTO DI MATEMATICA
E INFORMATICA



POLITECNICO
MILANO 1863



EMBODIMENT OF AI: COURSE PROGRAM

M	11	T	12	W	13	T	14	F	15
<input type="checkbox"/> 9:30 - 11:00 Introduction on robotics and Intelligence in robotics	<input type="checkbox"/> 9:30 - 11:00 Path planning	<input type="checkbox"/> 9:30 - 10:00 Sensors	<input type="checkbox"/> 9:30 - 11:30 Dynamics and control	<input type="checkbox"/> 9:30 - 13:00 Challenge preparation and possible new ideas					
<input type="checkbox"/> 11:30 - 13:00 Kinematics and inverse kinematics	<input type="checkbox"/> 11:30 - 13:00 Path planning with MATLAB and reinforcement learning	<input type="checkbox"/> 10:30 - 13:00 Computer vision with focus on endoscopic	<input type="checkbox"/> 12:00 - 13:00 Da Vinci surgical robot						
<input type="checkbox"/> Lunch Break	<input type="checkbox"/> Lunch Break	<input type="checkbox"/> Lunch Break	<input type="checkbox"/> Lunch Break	<input type="checkbox"/> Lunch Break					
<input type="checkbox"/> 15:00-15:30 ROS introduction	<input type="checkbox"/> 15:00-15:30 ASP for path search	<input type="checkbox"/> 15:00-18:00 Challenge: Natural-image detection tasks	<input type="checkbox"/> 15:00-16:30 Robot control task in simulation and challenge: path drawing on a rough surface with force interaction using ROS and KUKA simulation	<input type="checkbox"/> 15:00-18:00 Challenge presentations and weighted peer evaluation					
<input type="checkbox"/> 15:30-16:00 Gazebo	<input type="checkbox"/> 15:30-18:00 Reinforcement learning practice and challenge: RL for path planning		<input type="checkbox"/> 17:00-18:00 Da Vinci simulation task						
<input type="checkbox"/> 16:00-16:30 DVRK simulation environment									
<input type="checkbox"/> 16:30-17:00 Unity									
<input type="checkbox"/> 17:00-18:00 Challenges presentation									