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

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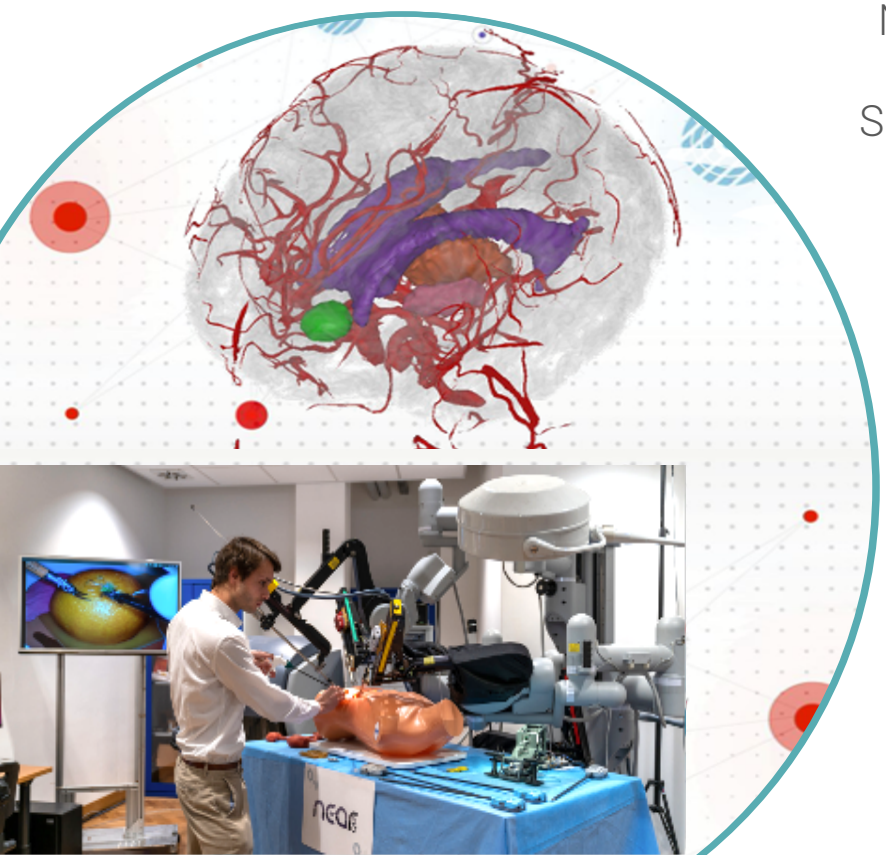

Theory

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

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

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EMBODIMENT OF AI: COURSE PROGRAM

M 11

- **9:30 - 11:00** Introduction on robotics and Intelligence in robotics
- **11:30 - 13:00** Kinematics and inverse kinematics
- **Lunch Break**
- **15:00-15:30** ROS introduction
- **15:30-16:00** Gazebo
- **16:00-16:30** DVRK simulation environment
- **16:30-17:00** Unity
- **17:00-18:00** Challenges presentation

T 12

- **9:30 - 11:00** Path planning
- **11:30 - 13:00** Path planning with MATLAB and reinforcement learning
- **Lunch Break**
- **15:00-15:30** ASP for path search
- **15:30-18:00** Reinforcement learning practice and challenge: RL for path planning

W 13

- **9:30 - 10:00** Sensors
- **10:30 - 13:00** Computer vision with focus on endoscopic
- **Lunch Break**
- **15:00-18:00** Challenge: Natural-image detection tasks

T 14

- **9:30 - 11:30** Dynamics and control
- **12:00 - 13:00** Da Vinci surgical robot
- **Lunch Break**
- **15:00-16:30** Robot control task in simulation and challenge: path drawing on a rought surface with force interacion using ROS and KUKA simulation
- **17:00-18:00** Da Vinci simulation task

F 14

- **9:30 - 13:00** Challenge preparation and possible new ideas
- **Lunch Break**
- **15:00-18:00** Challenge presemtations and weighted peer evaluation