W•SENSE Lab

This lab is open to local computer science/data science /computer engineering students with a background in robotics, computer vision and embedded programming.

When: Monday, September 16th 9:00-13:00
Where: Corner Room - MAXXI

Title: Underwater embedded systems and robotics: let's use sensing and robotic technologies to provide some solutions to explore and sustainably exploit the marine environments!

Context:
Oceans and the seas have always fascinated humankind. From Jules Verne to Jacques Cousteau the imagination of forward-looking innovators, writers and explorers have been often attracted by the undersea world, those two third of our planet covered by water.
As of today we know marine and ocean environments less than far away planets such as Mars. This is due to the many challenges when operating underwater (harsh weather conditions, communication problems-WiFi propagates a few centimeters underwater-, rusty and salty, high pressure environments).
Big data on marine and ocean environments are however of highest need as these environments are providing food for a growing human kind (by 2050 what we will be eating will be grown underwater), support the natural resources for our economy (oil&gas, minerals), and keep serving a crucial role in the planet equilibrium. More and more, as we have exhausted resources on the terrestrial part of our planet, needed resources come from seas and oceans!
WSense is a fast scaling up Italian company with international patents and market solution for the Internet of Underwater Things, i.e., networked systems of underwater sensors and robots. WSense innovations are providing a paradigm change on mapping, understanding and sustainable exploitation of underwater environment.

Description of the Lab:
Remote Operated Underwater Vehicles (ROVs) are becoming more and more used in underwater applications like oceanic cartography, sea exploration and monitoring. A ROV is basically a tethered underwater vehicle created to be controlled from distance without the need to send people to the deep sea.
A "classical" ROV has an on-board camera for monitoring and recording the underwater environment, connected to a main board used also to receive remote commands from the human operator.
In this lab we will try to replicate the underwater environment conditions by using specialized hardware (robotic arm and cameras) and software (simulators). We will see some of the foundational elements of a ROV and the main problems that arise underwater, trying to propose some useful solutions to provide solutions to one of the cutting edge challenges of the Blue Economy.

Participants will be offered a one day training on underwater communication and robotics before the event.

Award: best student in the Lab will be offered an internship at W·Sense (https://wsense.it/). Participants students who will successfully complete the Lab will be offered also a one day leadership and innovation course in W·Sense.

How to subscribe: please send an email to chiara.petrioli@wsense.it with subject Womencourage WSense Lab