Postdoc and PhD positions on
Robotic mapping of sea litter using learning and active sensing

Topic and context

At the Robotics and Nonlinear Control group of the Technical University of Cluj-Napoca (http://rocon.utcluj.ro), we are looking for one postdoctoral researcher and one more PhD student (one position has been filled) to work on mapping sea litter using a mixed team of aerial (quadcopter UAV), surface, and underwater robots. The positions are in the framework of the European Horizon 2020 project SeaClear, http://seaclear-project.eu.

We will exploit machine learning and active sensing techniques to map litter both on the sea floor and at the surface. We will choose a topic for each project based on common interest with the candidates selected. Possibilities include the development of novel mapping algorithms for individual UAV and UUV robots; coordinated mapping of the multirobot team; and application of the techniques in real demonstrations in Dubrovnik and Hamburg. A key common thread is that robot motion will be controlled in such a way as to optimally reduce the uncertainty in the map, with active sensing; and the unknown map will be handled with machine learning (supervised learning to build the map from observations, or reinforcement learning to directly control the robots). We will also be involved in lower-level sensing and control for the robot team, in cooperation with other partner institutions in the project.

Benefits

You will have the opportunity to work with top AI and robotics researchers in our group, as well as to travel and collaborate in the SeaClear consortium, which includes among others top technical institutions in the Netherlands (TU Delft), Germany (TU München, Fraunhofer), France (Subsea Tech), and Croatia (University of Dubrovnik). Salaries are highly competitive, with initial estimates around 2250EUR gross per month for the postdoc, and 1890EUR gross per month for the PhD. Travel to major international conferences in robotics and control is expected and will be funded from the project. Accommodation can be preferentially reserved in University facilities.

Requirements

We are looking for candidates with a strong background in systems and control, computer science, or related fields. For the postdoc, already established research contributions are a must. Expertise in robotics and machine learning is a plus. A good command of spoken and written English is necessary. The postdoc employment is expected to start in autumn-winter 2020 and lasts for two years; while the PhD projects start in October 2020 and last for three years.

How to apply

Applications and questions should be directed to the project lead Lucian Busoniu at lucian@busoniu.net, see also http://busoniu.net. Applications will be taken until the positions are filled, but for best chances you should apply as soon as possible. Your application must include:

For the postdoc position:

- Detailed academic CV
- Motivation letter
- Two references with email and phone
- List of publications
- PhD thesis (possibly in draft)

For the PhD position:

- Detailed academic CV
- Motivation letter
- Two references with email and phone
- Transcript of BSc and MSc programme with grades
- If applicable: List of publications