DCSC
Delft Center for Systems and Control

TU Delft
Delft University of Technology

The Delft Center for Systems and Control (DCSC) of Delft University of Technology, The Netherlands has a vacancy for a 4-year **PhD position** on

Machine-learning-based multi-sensor detection and classification for cleaning coastal waters using autonomous vehicles

Project description

In this PhD project we will develop novel machine-learning-based approaches for detection and classification in the context of autonomous unmanned underwater, surface, and aerial vehicles for locating, detecting, and collecting unwanted objects from coastal waters and seabeds.

The PhD project is part of the Horizon Europe project SeaClear 2.0 (Scalable full-cycle marine litter remediation in the Mediterranean: Robotic and participatory solutions). This project is a follow-up project of the European SeaClear project (see also https://seaclear-project.eu/).

The goal of SeaClear and SeaClear 2.0 is to develop a collaborative, heterogeneous multi-robot solution engaged in collecting marine waste using autonomous underwater, surface, and aerial vehicles for cost-effective marine litter detection and collection. This goal will be reached by bringing together state-of-the-art technologies from the fields of machine learning, sensing, manipulation, aerial and marine technologies and by building a stable and reliable system capable of tackling a highly relevant social, economic and environmental issue, namely ocean pollution.

In the PhD project we will focus on two main topics: (1) the development of multi-sensor detection, identification, and classification methods for underwater litter using the various sensors on-board of the underwater, surface, and aerial vehicles, and (2) integration of model-based and data-driven approaches for multi-sensor data fusion and detection classification of underwater litter. For topic (1) deep learning and multi-sensor fusion will be the primary solution directions, while for topic (2) we will extend these with data fusion and model-based decision making approach.

What do we ask?

We are looking for a candidate with an MSc degree in systems and control, applied mathematics, computer science, electrical engineering, or a related field, and with a strong background or interest in systems & control and/or machine learning. The candidate is expected to work on the boundary of several research domains. A good command of the English language is required and has to be demonstrated, by being a native speaker, having obtain an English-taught MSc degree, a TOEFL overall band score of 100 (with scores of at least 21 for all sections), or an IELTS overall band score of 7.0 (with scores of at least 6.5 for all sections).

What do we offer?

We offer the opportunity to do scientifically challenging research in a multi-disciplinary research group. The appointment will be for up to 4 years. The PhD student will also be able to participate in the research school DISC (https://disc.tudelft.nl). As an employee of the university you will receive a competitive salary starting of EUR 2541 gross per month in the first year and rising to a maximum of EUR 3427 gross per month based on a full-time appointment, as well as excellent secondary benefits in accordance with the Collective Agreement (CAO) of the Association of Universities in the Netherlands (VSNU). Assistance with accommodation can be arranged.

How to apply?

Are you interested in this vacancy? Please apply by March 1, 2023 via the application webpage https://www.tudelft.nl/over-tu-delft/werken-bij-tu-delft/vacatures/details?jobId=10585 and upload your letter of application along with a detailed curriculum vitae, a motivation why the proposed research topic interests you, a list of publications (if applicable), the abstract and/or summary of your MSc thesis, your BSc and MSc course program and the corresponding marks, names and addresses of two to three reference persons, and all other information that might be relevant to your application.
More information on this position can be obtained from Bart De Schutter (email: b.deschutter _at_ tudelft.nl).

The application deadline for the position is March 1, 2023. However, the position will stay open until a suitable candidate has been found.