

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

Learning-based cooperative multi-agent control

Project description

In this PhD project we will develop a framework for multi-agent learning aimed at cooperative control of a group of autonomous systems. More specifically, we address two challenges: (1) developing efficient methods for multi-agent learning in the presence of operational constraints, uncertainty, and at a later stage also memory and communication constraints, and (2) integration of the developed approaches with model-based (multi-level) control for increased performance. In the research we will focus in two classes of systems: linear systems and hybrid systems (in particular piecewise affine systems).

The project has a strong fundamental flavor. In addition, applications for the case studies include mapping and control of multiple autonomous underwater robots (this also includes dealing with the limited capabilities and constraints of underwater communication).

The PhD project is related to two ongoing European projects: the European ERC Advanced Grant project CLariNet, which aims at creating a completely new paradigm for control of large-scale networks with hybrid dynamics by bridging the gap between optimization-based control and learning-based control, and the SeaClear project, which aims at developing a solution for marine litter detection and removal using autonomous underwater robots.

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 machine learning, optimization, and control. The candidate is expected to work on the boundary of several research domains. A good command of the English language is required.

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://www.disc.tudelft.nl>). As an employee of the university you will receive a competitive salary starting of EUR 2443 gross per month in the first year and rising to a maximum of EUR 3122 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 May 31, 2022 via the application website and upload your letter of application along with a detailed curriculum vitae, an indication of which of the topic(s) you want to apply for, a motivation why the proposed research topic(s) interest 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 May 31, 2022. However, the position will stay open until a suitable candidate has been found.