



Assistant Professor in Control and Optimization of Complex Systems

Apply Now

Challenge:

Modelling the evolution of complex dynamical systems needs an accurate mathematical representation of the dynamic processes, for example via nonlinear differential algebraic equations.

Control and optimization of these complex, possibly infinite dimensional systems require new methodologies that are capable of adapting to the system parameters and features over space and time, and in turn drive the system state towards an efficient, desired target set.

Change: Develop mathematical frameworks, efficient control and optimization policies to maximize the robustness and the performance of complex dynamical systems.

Impact: New fundamental methodologies in control and optimization of complex dynamical systems.

Job description

The research area of the position will be oriented towards fundamental methodologies and engineering tools in one or more of the following fields (non exhaustive list):

- Complex dynamical systems over networks
- Adaptive control of complex systems
- Multi objective optimization and game theory of complex systems

or any other similar or related topic along these lines that falls into the general field of complex systems, control and optimization. Prospective research activities involve the development of systematic and computationally efficient modeling, analysis, control, and/or optimization methods within the topics listed above.

Within this position applications of the developed fundamental methods should be targeted towards control and optimization of epidemic systems, socio-technical and biological networks, transportation systems, infrastructure networks, automated driving and/or application fields that relate to current application fields at DCSC; or that could focus on a completely new field within DCSC that is related to the current research fields of the Faculty of Mechanical, Maritime and Materials Engineering (see https://www.tudelft.nl/en/3me/research/check_out_our_science/).

Requirements

We are looking for a candidate with a PhD degree in systems and control, computer science, applied mathematics, mechanical engineering, electrical engineering, or a related field, and with expertise in the broad fields of dynamic systems, control, and optimization. You should preferably have at least 1 year of post doctoral experience. You should already have gained an international reputation in your field of research and also have a proven track record in conducting innovative fundamental research, demonstrated by the ability to publish in leading international journals. You are expected to have an ambitious vision on the development of your own research program and to establish cooperation with other groups at the university, national, and international level.

You should also have the didactic abilities for teaching systems and control courses at the BSc, MSc, and postgraduate level, and for supervising MSc projects. Experience with teaching and mentoring is considered an advantage. The ability to work in a team and inspire others, to take initiative, to be results oriented, as well as good communication skills in verbal and written English are essential requirements.

In accordance with the equal opportunity policy of Delft University of Technology female candidates in particular are encouraged to apply.

Conditions of employment

This position is offered as an Academic Career Track position (0.8 – 1.0 FTE). During the Academic Career Track, we expect you to grow towards an Associate Professor position within a maximum of eight years, for which a position will be available. With other Academic Career Track colleagues, you will participate in the Academic Career Track Development programme, where you are offered ample opportunities to develop yourself in the areas of Education, Research, Societal Impact & Innovation, and Leadership & Organisation. You will regularly discuss your development and results with senior staff based on a personalized development and performance criteria agreed upon at the start of your Academic Career Track. You will start with a temporary contract that will be converted to a permanent contract no later than 12 -18 months after a positive evaluation, based on continuous confidence in your development potential and fit in the organisation.

Inspiring, excellent education is our central aim. We expect you to obtain a University Teaching Qualification (UTQ) within three years if you have less than five years of teaching experience. This is provided by the TU Delft UTQ programme as part of the Academic Career Track Development programme.

TU Delft sets high standards for the English competency of the teaching staff. The TU Delft offers training to improve English competency. If you do not speak Dutch, we offer courses to learn the Dutch language within three years.

Salary and benefits are in accordance with the Collective Labour Agreement for Dutch Universities. The TU Delft offers a customisable compensation package, a discount on health insurance and sport memberships, and a monthly work costs contribution.

Flexible work schedules can be arranged and you can work partly from home.

For international applicants, TU Delft has the [Coming to Delft Service](#). This service addresses the needs of new international employees and those of their partners and families. The Coming to Delft Service offers personalised assistance during the

preparation of the relocation, finding housing and schools for children (if applicable). In addition, a [Dual Career Programme](#) for partners is offered. The Coming to Delft Service will do their best to help you settle in the Netherlands.

TU Delft (Delft University of Technology)

Delft University of Technology is built on strong foundations. As creators of the world-famous Dutch waterworks and pioneers in biotech, TU Delft is a top international university combining science, engineering and design. It delivers world class results in education, research and innovation to address challenges in the areas of energy, climate, mobility, health and digital society. For generations, our engineers have proven to be entrepreneurial problem-solvers, both in business and in a social context.

At TU Delft we embrace diversity as one of our core [values](#) and we actively [engage](#) to be a university where you feel at home and can flourish. We value different perspectives and qualities. We believe this makes our work more innovative, the TU Delft community more vibrant and the world more just. Together, we imagine, invent and create solutions using technology to have a positive impact on a global scale. That is why we invite you to apply. Your application will receive fair consideration.

Challenge. Change. Impact!

Faculty Mechanical, Maritime and Materials Engineering

From chip to ship. From machine to human being. From idea to solution. Driven by a deep-rooted desire to understand our environment and discover its underlying mechanisms, research and education at the 3mE faculty focusses on fundamental understanding, design, production including application and product improvement, materials, processes and (mechanical) systems.

3mE is a dynamic and innovative faculty with high-tech lab facilities and international reach. It's a large faculty but also versatile, so we can often make unique connections by combining different disciplines. This is reflected in 3mE's outstanding, state-of-the-art education, which trains students to become responsible and socially engaged engineers and scientists. We translate our knowledge and insights into solutions to societal issues, contributing to a sustainable society and to the development of prosperity and well-being. That is what unites us in pioneering research, inspiring education and (inter)national cooperation.

Click [here](#) to go to the website of the Faculty of Mechanical, Maritime and Materials Engineering. Do you want to experience working at our faculty? These [videos](#) will introduce you to some of our researchers and their work.

Additional information

For more detailed information on the position, please contact Sergio Grammatico at s.grammatico@tudelft.nl.

Application procedure

Applicants should submit their letter of application along with a curriculum vitae or resume, a personal research and teaching statement, as well as a list of publications, links to or electronic copies of three key publications, and the names and email addresses of three referees via the Delft University of Technology vacancies website. The application deadline for the position is 1 July 2023. However, the position will stay open until a suitable candidate has been found.

Please note:

- A pre-employment screening can be part of the selection procedure.
- You can apply online. We will not process applications sent by email and/or post.
- Please do not contact us for unsolicited services.

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