

# Assistant Professor in Networked Cyber-Physical Systems

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## Job description

The Delft Center for Systems and Control (DCSC) is aiming to strengthen, expand, and renew its international competences through new recruitments. We are looking for excellent candidates with a proven track record of ground breaking scientific research, a challenging and innovative research program, and a commitment to higher education. As part of this initiative, we are offering a tenure-track assistant professor position for a period of 6 years, leading to a permanent position assuming excellent performance. During the tenure track, the candidate will have the opportunity to develop into an internationally acknowledged and recognized academic. To this aim, we offer a structured career and personal development program.

### Focus areas

This new position is expected focus on some of the following (non-exhaustive list of) topics to complement existing research efforts at the department:

- Multi-agent and mixed human-machine decision networks
- Quantum control theory and applications
- Model-reduction of large-scale and networked systems
- Nonlinear dynamical networks with potential applications in social and biological networks, biomedical devices, telecommunications, and smart infrastructure

The successful candidate will be part of the Networked Cyber-Physical Systems group at DCSC, whose research efforts are aimed at improving our understanding and control of cyber-physical systems composed of a large number of interconnected and embedded components. Such networks of systems contain a huge number of sensors and actuators that generate a tremendous amount of data to be processed in real-time in order to increase the autonomy of the participating entities, or accomplish a high level of automation. The scientific challenges currently pursued by the team are of multidisciplinary nature, and include the following topics and applications:

- Distributed decision-making, control, estimation, and optimization for large-scale systems
- Control over wireless sensor/actuator networks
- Embedded real-time optimization-based control and estimation under uncertainty and information constraints

- Anomaly detection, fault diagnosis/estimation, and cyber-secure reconfigurable control
- Parallel, asynchronous, event-triggered computation for autonomous decision-making
- Correct-by-design synthesis of embedded control software, formal verification
- Current application areas: distributed and cooperative robotic networks, multi-vehicle systems, aeronautical, space, and automotive applications, thermal-, electricity-, and water-networks and smart energy systems, smart buildings, agricultural systems, and high-tech manufacturing systems

The department Delft Center for Systems and Control (DCSC) of the faculty Mechanical, Maritime and Materials Engineering, coordinates the education and research activities in systems and control at Delft University of Technology. The Centers' research mission is to conduct fundamental research in systems dynamics and control, involving dynamic modelling, advanced control theory, optimisation and signal analysis. The research is motivated by advanced technology development in physical imaging systems, renewable energy, robotics and transportation systems.

## Requirements

We are looking for candidates with a research profile that complements and/or expands our current activities. In particular, we are looking for candidates with a PhD degree in systems and control, computer science, applied mathematics, mechanical engineering, electrical engineering, or informatics, and with an extensive expertise in the topics defined above as well as the broad field of systems and control. Candidates should already have gained an international reputation in their field of research and also has a proven track record in conducting innovative fundamental research, demonstrated by the ability to publish in leading international journals.

The successful candidate should also have the didactic abilities for teaching systems and control courses at the BSc, MSc, and postgraduate level, and for supervising MSc projects. A good command of English is an essential requirement.

## Conditions of employment

A tenure-track position is offered for six years. In the fifth year we'll decide if you will be offered a permanent faculty position, based on performance indicators agreed upon at the start of the appointment. We expect that you have the potential to grow towards an Associate Professor and/or Full Professor role in the future.

For more information about the tenure track and the personal development programme, please visit [www.tudelft.nl/tenuretrack](http://www.tudelft.nl/tenuretrack).

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.

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 (salary indication: € 3.821,00 - € 5.230,00 per month gross).

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.

For international applicants we offer the Coming to Delft Service and Partner Career Advice to assist you with your relocation. An International Children's Centre offers childcare and there is an international primary school.

TU Delft creates equal opportunities and encourages women to apply.

## 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 and aim to be as inclusive as possible (see our [Code of Conduct](#)). Together, we imagine, invent and create solutions using technology to have a positive impact on a global scale.

Challenge. Change. Impact!

## Faculty Mechanical, Maritime and Materials Engineering

The Faculty of 3mE carries out pioneering research, leading to new fundamental insights and challenging applications in the field of mechanical engineering. From large-scale energy storage, medical instruments, control technology and robotics to smart materials, nanoscale structures and autonomous ships. The foundations and results of this research are reflected in outstanding, contemporary education, inspiring students and PhD candidates to become socially engaged and responsible engineers and scientists. The faculty of 3mE is a dynamic and innovative faculty with an international scope and high-tech lab facilities. Research and education focus on the design, manufacture, application and modification of products, materials, processes and mechanical devices, contributing to the development and growth of a sustainable society, as well as prosperity and welfare.

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? This [video](#) will introduce you to some of our researchers and their work.

## Additional information

For more information about this position, please contact Prof.dr.ir. Tamás Keviczky, [t.keviczky@tudelft.nl](mailto:t.keviczky@tudelft.nl).

For information about the application procedure, please contact Hilma Bleeker, HR advisor, [application-3me@tudelft.nl](mailto:application-3me@tudelft.nl).

## Application procedure

Are you interested in this vacancy? Please apply by **31 August 2022** via the application button and upload:

1. a detailed curriculum vitae that explicitly states your educational record, recent major achievements, list of publications,
2. a separate motivation letter stating why the proposed research topic interests you,
3. a vision on research and education, and
4. the names of three persons who could be contacted for a reference and any other information that might be relevant to your application.

Evaluation process will start from 22 August 2022.

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.

Acquisition in response to this vacancy is not appreciated.

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