Delft Center for Systems and Control

TU Delft
Delft University of Technology

Assistant Professor Networked and AI-based Control and Planning for AgroFood

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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. 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.

Precision agriculture and data-driven intelligent decision-making and control systems in agriculture, horticulture, aquaculture, and food are becoming increasingly critical in meeting sustainable food production and economical, ecological, and societal goals in the 21st century.

This position aims at the development of AI-based approaches (e.g. deep learning) as well as integrated model-based and AI-based control and decision making approaches for agricultural applications. The main objective is to improve the trade-offs between economic yield, climate impact, and sustainability. This also includes distributed AI-based control for networked systems of distributed sensors/actuators (e.g. in large-scale green houses) for e.g. control of temperature, ventilation, humidity, irrigation, as well as harvesting. Another relevant aspect is dealing with a wide range of time scales (covering relatively fast processes such as weather and temperature and slow processes such as plant growth) and spatial scales.

Preferred expertise may include (but is not limited to) the following topics:

- AI-based control, planning, and decision making for large-scale systems
- Networked sensing and control methods for large-scale nonlinear systems
- Data-driven modeling for control of large-scale systems
- Multi-sensor fusion, optimization, and control of nonlinear distributed-parameter systems
- Data-driven and model-based control for next generation agriculture or food processing 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 excellent candidates with a proven track record of ground breaking scientific research, a challenging and innovative research program, and a commitment to higher education.
The successful candidate for this position should have a PhD degree in systems and control, applied mathematics, bioinformatics, or related fields with applications in agriculture, food, or related fields. In addition, the candidate should have an extensive expertise in the topic of the position as well as the broad field of systems and control. An outstanding track record in conducting innovative academic research is required, demonstrated by the ability to publish in leading international journals. In addition, excellent communication skills, a clear research vision, and an affinity with teaching on both bachelor and master level are required. The successful candidate is expected to develop her/his own line of research and to establish cooperation with other groups at the university, national, and international level.

Conditions of employment

The tenure-track position is offered for six years. 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. In the fifth year of the tenure-track 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.

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. 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 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

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 vacancy, please contact Prof.dr.ir. Bart De Schutter, b.deschutter@tudelft.nl.

For information about the application procedure, please contact Ms Irina Bruckner, HR advisor, application-3mE@tudelft.nl.

Application procedure

Are you interested in this vacancy? Please apply by 19 September 2022 via the application button and upload:

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

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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