



PhD Position on Learning and Control for Networked CPS

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Job description

The vacant position is within the Networked Cyber-Physical Systems (NCPS) research group. This group aims at improving our understanding and control of cyber-physical systems composed of a large number of interconnected and embedded components. Such networks of systems may contain a large 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 spanning over several application domains such as: distributed and cooperative robotic networks, multi-vehicle systems, aeronautical, space, and automotive applications, thermal-, electricity-, and water.

The current PhD position will investigate the combination of machine learning approaches and formal methods from computer science and control engineering to devise solutions to diverse problems arising in the context of Networked Control Systems. In particular, the project will focus on the synthesis of controllers that while abiding to pre-specified communication patterns, can guarantee correctness w.r.t complex control specifications.

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.

<http://www.dcsc.tudelft.nl>

Requirements

You should preferably have the following qualifications:

- An MSc degree in systems and control, applied mathematics, electrical engineering, computer science, or related fields.
- Basic knowledge of control systems theory (maybe waived if the candidate is particularly skilled on theoretical computer science).

- Strong analytical skills and an ability to work at the intersection of several research domains, in particular control systems theory and computer science.
- Basic programming skills in Python, C/C++ are expected.
- Good command of the English language and good communication skills.

Conditions of employment

TU Delft offers PhD-candidates a 4-year contract, with an official go/no go progress assessment after one year. Salary and benefits are in accordance with the Collective Labour Agreement for Dutch Universities, increasing from € 2395 per month in the first year to € 3061 in the fourth year. As a PhD candidate you will be enrolled in the TU Delft Graduate School. The TU Delft Graduate School provides an inspiring research environment with an excellent team of supervisors, academic staff and a mentor. The Doctoral Education Programme is aimed at developing your transferable, discipline-related and research skills.

The TU Delft offers a customisable compensation package, discounts 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.

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 vacancy, please contact Manuel Mazo Espinosa, Associate Professor, email: m.mazo@tudelft.nl or tel: +31 (15) 2788131

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

Application procedure

Are you interested in this vacancy? Please apply before 15 April 2021 via the application button and upload:

- a detailed curriculum vitae (including contact information of at least 2 references),
- a separate motivation letter stating why the proposed research topic interests you, and other information that might be relevant to your application,
- academic transcripts of both your BSc and MSc degrees.

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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