



Assistant/Associate Professor Data Driven Modelling and Control in AI for Health

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Job description

The Delft Center for Systems and Control (DCSC) invites outstanding applicants for a Tenure-track Assistant or Associate Professor position in the field of artificial intelligence (AI) for diagnostics in personalised health treatment.

This position focuses on data driven modelling for AI-based decision to make health care more personalized by assisting a team of medical experts in effective analysing, acquiring, and processing of massive diagnostic data. The data is coming from a hybrid, multi-physics systems perspective. Hereby aspects of machine learning to deal with uncertainty, large-scale data sets, and interaction with experts are highly relevant. The quantitative data-based models are integrated with medical domain knowledge to enhance the decision-making process. Possible examples are the use of deep learning to make the integration of AI in healthcare more reliable and at the same time more patient friendly, integration of new hardware and AI algorithms for personalized health care, leveraging of smart optical and other diagnostic systems for personalized treatment, or quantum computing/control/sensing for health.

The position should expand and/or strengthen DCSC's current activities in the area of signal analysis, identification, compressed sensing, data-driven decision making and control on one side and DCSC's application areas in health care on the other side.

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

Applicants should possess the following qualifications and attributes:

1. A PhD degree in Systems and Control, Electrical Engineering, Physics, Applied Mathematics, Computer Science or another relevant engineering discipline, with postdoctoral experience and with an outstanding scholar record and a strong commitment to excellence in research and teaching.
2. Experience in medical application of machine learning, preferably in collaboration with medical professionals and hospitals, for prototyping new algorithms for (one or more of) the research topics described in the preamble.
3. Experience with new medical diagnostics hardware developments to better streamline the development of the medical diagnostics algorithms.

In addition, applicants should have a strong background in one or more of the following areas:

1. The interface between on the one hand data driven modelling (system identification) and control, decision making, and deep learning on the other hand.
2. The short-comings of state-of-the-art medical AI solutions that prevent their incorporation into clinical practice.
3. Bayesian network modelling and inference for improved diagnosis and prognosis in healthcare.

Conditions of employment

An Assistant Professor position is a tenure-track position, and is offered for a maximum of six years. Tenure Track is a process leading up to a permanent appointment with the prospect of becoming an Associate Professor. During the Tenure Track, you will have the opportunity to develop into an internationally acknowledged and recognised academic. To support that, we offer a structured career and personal development programme, which accounts for individual needs and preferences.

Based on performance indicators agreed upon at the start of the appointment, a decision will be made at the end of the fifth year whether to offer you a permanent faculty position. For more information about the tenure-track and the personal development programme, please visit www.tudelft.nl/tenuretrack.

The salary for a Assistant Professor (Tenure Track) position is min. €3.974 to max. €6.181 per month gross.

For exceptionally strong candidates, a shortened tenure track period or Associate Professor position can be considered.

For an Associate Professor position different terms of employment apply. Depending on background and experience, the salary can range from min. € 5.506 to max. €7.362 per month gross.

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.

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. Michel Verhaegen, m.verhaegen@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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