

Assistant/Associate Professor in Modeling, simulation and control of multi-physics systems

Engels -- Faculty/department Mechanical, Maritime and Materials Engineering
Level PhD
Maximum employment Maximum of 38 hours per week (1 FTE)
Duration of contract Tenure track (5 years initially)
Salary scale €3195 to €???? per month gross

Mechanical, Maritime and Materials Engineering

The 3ME Faculty trains committed engineering students, PhD candidates and post-doctoral researchers in groundbreaking scientific research in the fields of mechanical, maritime and materials engineering. 3ME is the epitome of a dynamic, innovative faculty, with a European scope that contributes demonstrable economic and social benefits.

The Delft Centre for Systems and Control (DCSC) is a merger of three former systems and control groups within Delft University of Technology: the groups of Electrical Engineering, Mechanical Engineering, and Applied Physics. The Centre is currently composed of 15 academic staff members who supervise around 35 PhD students and 30 MSc students. The teaching and research field encompasses the wide area of modelling, estimation and identification, robust control and optimisation of continuous and hybrid dynamical systems. Applications include, but are not limited to, mechatronics and microsystems, robotics, sustainable industrial processes, transportation and traffic control, and physical imaging systems.

DCSC is responsible for an international MSc programme in Systems and Control and participates in the BSc and MSc programmes in mechanical engineering, electrical engineering, applied physics, and chemical engineering. The group also actively participates in the Dutch graduate school DISC (Dutch Institute of Systems and Control) and the Dutch Research School for Astronomy (NOVA). Within DCSC, pioneering multidisciplinary research activities are initiated in identification and control for imaging systems. DCSC maintains cooperative research contacts with many industrial partners. See also DCSC's website: www.dcsc.tudelft.nl.

Job description

The position's research focus will be oriented towards fundamental aspects in simulation, modelling, identification and control of physical systems in photonics, adaptive optics, quantum optics, thermal elastic and microsystems.

The fundamental research of the new position will involve developing numerical methods for simulating and control of multi-physics dynamical systems described by partial differential equations coming from different physics domains (adaptive optics, photonics, thermal and elastic). Attention will also be given to the algorithmic implementation, taking developments in embedded computing with multi-core processors or distributed computing into consideration. This both for high

performance object oriented simulation and real-time embedded control. In addition to the fundamental research a clear link with innovative technological drivers is a key aspect of the (future) research agenda of the candidate. These application developments require close cooperation in a multidisciplinary team with biologists, physicists, micro-electronic sensor and actuator developers and medical staff. The application studies involve joint development of innovative hardware demonstrators.

The position also challenges the candidate to develop a new course curriculum to prepare students for joining in the research at the BSc, MSc and PhD levels. This curriculum design also involves developing and maintaining a high quality laboratory. The development of such a lab environment for education will be closely linked with the new research initiatives initiated through external funding.

Requirements

The candidate has a PhD degree in one of the following areas: Mathematics, Applied Physics, Electrical Engineering, Mechanical or Aerospace Engineering, with a profound specialisation in physics and systems and control. He or she is able to conduct research according to international standards, as demonstrated by international publications and a PhD thesis. The candidate has already gained an international reputation in his or her field of research. Additional experience in setting up an optics lab for validation of new system theoretic developments is an asset. The candidate is able to effectively cooperate and communicate with colleagues in related fields.

He or she has a stimulating and cooperative attitude in contacts with students, engineers, and colleagues within the group and in projects performed in collaboration with other university groups and/or industrial partners. International applicants must be willing to acquire a working knowledge of the Dutch language.

Conditions of employment

The position offered is a tenure-track position for a period of 5 years, leading to a permanent position assuming excellent performance.

TU Delft offers an attractive benefits package, including a flexible work week, free high-speed Internet access from home (with contracts of two years or longer), and the option of assembling a customised compensation and benefits package (the 'IKA'). Salary and benefits are in accordance with the Collective Labour Agreement for Dutch Universities.

TU Delft sets specific standards for the English competency of the teaching staff. TU Delft offers training to improve English competency.

Information and application

For more information about this position, please contact Prof. M. Verhaegen, phone: +31 (0)15-2785204, e-mail: m.verhaegen@tudelft.nl. To apply, please e-mail the following materials: a resume, including list of publications, the names of three professional references, copies of three significant publications, a personal research statement, and a personal teaching statement. Please e-mail your materials by 15 April 2012 to Prof. Verhaegen, application-3mE@tudelft.nl.

When applying for this position, please refer to vacancy number 3ME??-??.