

The Delft Center for Systems and Control at Delft University of Technology, The Netherlands, invites applications for:

Assistant/Associate Professor Modeling and Control of Complex Physical/Chemical Processes

Description of DCSC

The Delft Center for Systems and Control (DCSC) is a merger of three former systems and control groups within Delft University of Technology, i.e., the groups of Electrical Engineering, Mechanical Engineering, and Applied Physics. The Center is located within the Mechanical Engineering faculty and is currently composed of 16 academic staff who supervise about 50 PhD students and postdocs. The teaching and research field of DCSC encompasses the wide area of modeling, estimation and identification, control and optimization of linear, non-linear, and hybrid dynamical systems.

Applications include, but are not limited to, mechatronics and microsystems, sustainable industrial processes, transportation and traffic control, and physical imaging systems.

DCSC is responsible for an international MSc program in Systems and Control, and participates in the BSc and MSc programs in mechanical, electrical, chemical and marine engineering, as well as in applied physics. The group actively participates in the Dutch graduate school DISC (Dutch Institute of Systems and Control) and the 3TU Centre of Excellence in High Tech Systems. DCSC has extensive laboratory facilities and has collaborative research projects with many industrial partners.

Profile of position – Mastering the dynamics in sustainable process technology

In terms of research the position focusses on nonlinear modelling, estimation and model-based control and optimization of dynamical systems in a chemical/physical domain. It is intended to take an active role in the current development in process technology to increase the efficiency and sustainability of current processes as well as in the design of new process technology, to use a strong knowledge-based (model-based) approach in optimizing process performance under regular operational constraints.

Particular elements in this research are (validated) first-principles models, partial differential equations, complexity and model reduction, data-analysis, model-based control (MPC) and optimization strategies, as well the interplay between process design and operation.

Current application projects in this domain within DCSC include e.g., separation (crystallization) processes, oil/gas reservoir engineering with smart wells, waste incineration plants, and bubble column reactors. Future applications are possible in e.g., energy systems, process intensification, and/or biotechnology.

Within TUD extensive relations exist with process technology and chemical engineering partners within the Delft Research Centre on Sustainable Industrial Processes; the reservoir engineering projects are performed in direct collaboration with Shell, the TUD department of Applied Earth Sciences, and Research Institute TNO.

In terms of education, contributions are expected in teaching modelling, control and optimization modules in process technology programs (mechanical and chemical engineering), as well as process control related modules in the systems and control programs.

Candidates' profile

Candidates should have a research interest in advancing system and control methods to cope with questions in the design and operation of complex dynamical systems, and an interest to bring the results of research to applicable technology. This requires an open mind to cross borders beyond classical disciplines. The preferred profile is mechanical, chemical or applied physics with a solid background in dynamical systems and control.

Candidates should have a completed PhD degree and a strong research track record demonstrated by publications in leading scientific journals. Also candidates should have the necessary didactical abilities

to teach relevant courses both at the Bsc, Msc and postgraduate level, and should be interested in defining and managing innovative research projects. Experience in working in multidisciplinary teams is appreciated. International applicants must be willing to acquire knowledge of the Dutch language.

Conditions of employment

The offered positions are tenured positions, being preceded by a tenure track, dependent on the candidates experience and background. The salary, in accordance with the Dutch University Collective Labor Agreement (CAO, see www.vsnu.nl), is depending on the qualifications and experience of the candidate selected. The maximum salary for an assistant professor is approx. € 4760 gross per month, and for an associate professor approx. € 5670 gross per month based on a 38-hour working week.

Information and application

General inquiries on DCSC and the position can be obtained from the director:

Prof. Paul Van den Hof, p.m.j.vandenhof@tudelft.nl, while general information on DCSC is also available from the website www.dcsc.tudelft.nl.

Interested applicants should send their 1) resume; 2) contacts of three professional referees, 3) copies of three significant publications; 4) a personal research statement; 5) a personal teaching statement (which gives your ambition and vision for the coming years); before 1 February 2008 to:

TU Delft - Faculty of Mechanical, Maritime and Materials Engineering

Personnel Department

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