PhD: Cooperative Network Games

**Faculty/department** Mechanical, Maritime and Materials Engineering  
**Level** Master degree  
**Maximum employment** Maximum of 38 hours per week (1 FTE)  
**Duration of contract** 4 years  
**Salary scale** 2222 to €2840 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.

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The Delft Centre for Systems and Control (DCSC) coordinates the education and research activities in systems and control at Delft University of Technology. The Centre's 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, robotics and transportation systems.

**Job description**  
Project description: The candidate will conduct multi-disciplinary, algorithmic research on complex, multi-agent systems characterised by the presence of: (1) mixed cooperative and noncooperative agents; (2) high volume of historic data (big data) and forecast on the uncertain variables; (3) nonlinear system dynamics. The key challenges are to extract the knowledge hidden in the historic data, e.g. via statistical learning, and to coordinate the states and the decisions of the agents to an efficient equilibrium solution, e.g. via the principles of the sharing economy. Thus, distributed statistical learning shall be developed for cooperative game theory. The main application area is distributed, peer-to-peer energy trading in smart power grids.

The PhD position is in the context of the project “Enabling peer-to-peer energy trading by leveraging prosumer analytics” (P2P-TALES), funded by the Netherlands Organization for Scientific Research (NWO) as a collaborative project on Energy Systems Integration and Big Data (ESI-BIDA):  

**Requirements**  
We are looking for a talented candidate who has or is close to completing an MSc degree in Systems and Control, Applied Mathematics, Electrical or Mechanical Engineering, or a related field, with theoretical background and interest in System Theory, Automatic Control, Optimisation, Game Theory, and a good command of the English language (knowledge of Dutch is not required).
**Conditions of employment**
The TU Delft offers a customisable compensation package, a discount for health insurance and sport memberships, and a monthly work costs contribution. Flexible work schedules can be arranged. An International Children’s Centre offers childcare and an international primary school. Dual Career Services offers support to accompanying partners. Salary and benefits are in accordance with the Collective Labour Agreement for Dutch Universities. As a PhD candidate you will be enrolled in the TU Delft Graduate School. The TU Delft Graduate School provides an inspiring research environment; an excellent team of supervisors, academic staff and a mentor; and a Doctoral Education Programme aimed at developing your transferable, discipline-related and research skills. Please visit http://graduateschool.tudelft.nl/ for more information.

**Information and application**
Applications shall include the following documents:
- curriculum vitae;
- statement of motivation and research interests (up to one page);
- transcripts of all exams taken and obtained degrees (in English);
- names and contact information of up to three references (e.g. project/thesis supervisors);
- up to two research-oriented documents (e.g. thesis, conference/journal publication).

For applications and more information about this position, please contact Sergio Grammatico, s.grammatico@tudelft.nl by 28 February 2018. When applying for this position, please refer to vacancy number 3ME18-04.