Assistant or Associate Professor

Motion Comfort of Automated Driving

Location	Delft
Function types	Hoogleraren, UHD's, UD's & lectoren, Onderzoek, Ontwikkeling, Innovatie
Scientific fields	Techniek
Hours	38.0 hours per week
Salary	€ 3637 - € 6738
Education	Gepromoveerd
Job number	3mE19-31
Translations	en
About employer	Technische Universiteit Delft (TU Delft)
Short link	www.academictransfer.com/54183

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Job description

TU Delft, the Netherlands, invites applications for an Assistant/Associate Professor Position (tenure track) investigating human motion perception and motion comfort to develop new insights and models predicting comfort of automated driving.

Automated driving holds great promise to provide safe and sustainable transport. Passenger cars will soon achieve safety levels allowing users to take their eyes off the road, freeing up time for work or leisure activities. Surveys indicate that consumers are interested in reading and operating digital devices whilst using automation. These needs must be taken into account for the design of vehicle motion controllers and interiors. A particular concern is "self-driving car sickness". Drivers rarely suffer from car sickness, but sickness is reported by two-thirds of passengers during eyes off road conditions. Hence, knowledge and models of motion comfort are urgently needed to achieve high comfort levels in automated driving.

A range of theories and models associate motion sickness with motion perception and posture maintenance. Due to a multitude of factors existing models fail to predict motion comfort in automated driving. Effects of 3D motion and the modulating role of vision are not sufficiently captured. The relation between motion comfort and posture maintenance sees little empirical support. Current knowledge focusses on severe (pre-)vomiting sickness rather than the targeted high comfort levels.

The candidate is expected to develop enhanced and new experimental methods, theories and models addressing the knowledge gaps identified above.

Experimental vehicles and moving base driving simulators will be used to systematically investigate perceived comfort as a function of vehicle motion, vision, non-driving task, and seating. Together with other researchers full body biomechanical models and motion perception models will be integrated to jointly predict body motion and comfort. Together with other researchers and partners the resulting insights and models will be used to design innovative control algorithms for automated vehicles.

We expect you to:
- ☐ Develop, conduct and supervise high-quality academic research;
- ☐ Inspire students through teaching and supervision;
- ☐ Collaborate with specialists in academia and industry in multidisciplinary projects;
- ☐ Transfer theory to innovative technology;
- ☐ Secure external funding for research projects;
- ☐ Be an inspiring contribution to our staff.

Requirements

Candidates are expected to be, or be on their way to becoming, authorities in their own field of research, and to complement and enrich the existing research programs in the department. For the overall balance in the department, we especially welcome applications from female scientists.

Applicants should have the following qualifications:

- ☐ PhD degree in Mechanical Engineering, Neuroscience, Human Movement Sciences, or comparable studies and experience.
- ☐ In particular we value experience in: Motion perception (vision, vestibular), Postural stabilization, Biomechanical testing (motion capture, EMG) and modelling, System identification & Frequency domain analysis, Automotive, Comfort, Human factors.
- ☐ Strong analytical skills and ability/interest to work at the intersection of several research domains;
- ☐ At least one year of research experience after the PhD, and experience outside the Netherlands;
- ☐ Excellent track record in scientific research, as evident from papers in international and peer-reviewed journals.

Conditions of employment

At the start of the tenure-track you will be appointed as Assistant Professor for the duration of six years. The section leader, department leaders and you will agree upon expected performance and (soft) skills. You will receive formal feedback on performance and skills during annual assessment meetings and the mid-term evaluation. If the performance and skills are evaluated positively at the end of the tenure track, you will be appointed in a permanent Assistant Professor position.

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. TU Delft sets specific standards for the English competency of the teaching staff. TU Delft offers training to improve English competency. Inspiring, excellent education is one of our central aims. If you have less than five years of experience and do not yet have your teaching certificate, we allow you up to three years to obtain this.

Contract type: Tijdelijk, tenure track

Employer

Delft University of Technology (TU Delft) is a multifaceted institution offering education and carrying out research in the technical sciences at an internationally recognised level. Education, research and design are strongly oriented towards applicability. TU Delft develops technologies for future generations, focusing on sustainability, safety and economic vitality. At TU Delft you will work in an environment where technical sciences and society converge. TU Delft comprises eight faculties, unique laboratories, research institutes and schools.

Department

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 Cognitive Robotics department within the 3mE Faculty aims to develop intelligent robots and vehicles that will advance mobility, productivity and quality of life. Its mission is to bring robotic solutions to human-inhabited environments, focusing on research in the areas of machine perception, motion planning and control, machine learning, automatic control and interaction. The department combines fundamental research with work on physical demonstrators in areas such as self-driving vehicles, collaborative industrial robots, mobile manipulators and haptic interfaces. Collaborations exist with cross-faculty institutes TU Delft Robotics Institute and TU Delft Transport Institute), and international industry and academia. For more information, see Cognitive Robotics (CoR) and Intelligent Vehicles (IV).

Additional information

For more information about this position, please contact dr R. Happee, Associate Professor, e-mail: r.happee@tudelft.nl, tel.: +31 1527883213. To apply, please send a detailed CV, motivation letter, a research and teaching statement, electronic copies of your top three publications and contact data of at least three references. All required documents should be combined to a single pdf file. Applications should be submitted by email at the earliest convenience to application-3mE@tudelft.nl. When applying for this position, please refer to vacancy number 3mE19-31. We will start to select candidates on 1 June 2019.