1 remaining PhD vacancy (PhD3) within:

3 PhD student: Safety of Motorized Two-wheelers

Engels -- 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 €2083 to €2664 per month gross

Mechanical, Maritime and Materials Engineering

The 3mE Faculty trains committed engineering students, PhD candidates and post-doctoral researchers in ground-breaking 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.

Biomechanical Engineering is a research department at Delft University of Technology, located in the Faculty of Mechanical, Maritime and Materials Engineering (3ME). The Department of Biomechanical Engineering coordinates education and research activities in the field of mechanical engineering techniques, like modelling and design, to analyse the interaction between biological and technical systems.

The Automotive group in the Department of Biomechanical Engineering has the mission of enhancing road safety, road capacity, driving pleasure, and comfort. The group's research topics include automated driving, driver support, driver modelling, driver training, and driver assessment.

Job description

MOTORIST (Motorcycle Rider Integrated Safety) is an **Initial Training Network (ITN)** Nr. 608092, funded under the FP7 Marie Curie programme. **Duration:** Feb. 1, 2014 - Jan. 31, 2018.

MOTORIST aims to make the use of Powered Two Wheelers (PTWs) safer such that fewer accidents occur and if an accident is unavoidable the consequences for the rider to sustain injuries are minimal. The project is divided in three related work packages (WPs).

WP1 aims to improve the rider's skills with training strategies that are derived from in-depth accident data and from a quantification of rider behaviour in critical situations.

WP2 aims at developing advanced safety systems that improve the interaction between the rider and the PTW by modelling the rider, also based on the in WP1 quantified rider behaviour.

WP3 considers the cases where the crash is unavoidable and will develop personal protective equipment to protect the riders.

TU Delft is recruiting 1 PhD candidates.

1) **PhD1 will evaluate rider training programs in terms of skill acquisition and safety** which will be jointly developed with other researchers, using instrumented vehicles and rider simulators. In that context, the TU Delft contribution will include a study on

Pedelecs and Speed pedelecs. Amongst other, PhD1 will focus on simulator fidelity, behavior observation, training protocols, skill assessment, and evaluation of training effectiveness and transfer of training to real life traffic.

2) **PhD2 & PhD3 will investigate and model steering & balance behaviour of PTW riders.** Experiments and system identification methods will be developed to gain understanding in the way riders use visual, vestibular and musculoskeletal sensory information to stabilize 2-wheelers, and to follow a desired path. PhD2 will focus on the investigation of normal balance and steering behaviour whereas PhD3 will focus on safety critical events and on-line detection of deviant driver behavior.

The research activities will mainly be carried out at TU Delft, the Netherlands, combined with research visits and/or short-term secondments to other members of the network.

Requirements

The requirements are as follows:

1. For PhD1 we are looking for candidates with an interest, and/or experience in (cognitive) ergonomics, skill acquisition, training, statistics, and biomechanics. Candidates should have a degree in Behavioral sciences (e.g., Psychology) or Human Movement sciences, and have a strong affinity with Engineering and Physics.
2. For PhD2 & PhD3 we are looking for candidates with an interest, and/or experience in vehicle dynamics, multibody dynamics, control theory, biomechanics & perception. Candidates should have a degree in Engineering or Physics.
3. You have an MSc degree in a quantitative discipline.
4. You are in the first four years of your research career (measured from the date when you obtained the MSc degree).
5. You are able to fulfil transnational requirements (i.e., move from one country to another for 3 to 4 secondments of 2 to 3 months each, and for workshops).
6. You have not resided or carried out your main activity (work, studies) in the Netherlands for more than 12 months in the 3 years immediately prior to recruitment under the project.

Conditions of employment

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.
As a PhD candidate you will be enrolled in the TU Delft Graduate School. 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 www.phd.tudelft.nl for more information.

Information and application

For more information about this position, please contact R.Happee@tudelft.nl. Candidates are requested to send their CV including (a) grades list, (b) brief letter of application, and (c) scientific paper or thesis to R.Happee@tudelft.nl; a.l.schwab@tudelft.nl; jcfdewinter@gmail.com. Additionally, applicants should indicate whether they are eligible for Marie Curie ITN funding (diploma, transnational

mobility requirement, and country of residence in 2010–2013). Recruitment will commence Jan 20, 2014 and will continue until positions are filled.
When applying for this position, please refer to vacancy number 3ME14-xx.