

# PhD: Automated-Vehicles-to-Human-Road-Users communication

## Specifications - ([explanation](#))

<b>Location</b>	Delft
<b>Function types</b>	<a href="#">PhD positions</a>
<b>Scientific fields</b>	<a href="#">Engineering</a>
<b>Hours</b>	38.0 hours per week
<b>Salary</b>	€ 2325 - € 2972
<b>Education</b>	University Graduate
<b>Job number</b>	3mE19-42
<b>Translations</b>	<a href="#">en</a>
<b>About employer</b>	<a href="#">Delft University of Technology (TU Delft)</a>
<b>Short link</b>	<a href="http://www.academictransfer.com/54796">www.academictransfer.com/54796</a>

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## Job description

A bottleneck is that current automated vehicles (AVs) do not communicate to human road users (HRUs), making AV-HRU encounters inefficient and potentially accident-prone as compared to HRUs who fluently move in traffic through mutual communication of their states and intentions. Because AVs have excellent sensor and computational abilities, the opportunity arises to develop AV-to-HRU communication that not only emulates but also surpasses the information content of HRU-to-HRU communication.

As part of the NWO VIDI project, “How should automated vehicles communicate with other road users?”, you will devise effective AV-to-HRU communication methods. You will study how HRUs communicate with each other, and examine whether AVs’ gestures should be human-like (anthropomorphic) or nonhuman (mechanistic), and implicit (embedded in vehicle motion) or explicit (visual/auditory signs).

The tasks to be performed include computer simulations and robust empirical research (on-road experiments, virtual reality experiments, & surveys) to examine how HRUs currently communicate and how AVs should communicate.

You will work in a challenging international environment, with access to state-of-the-art lab facilities. You will participate in a multidisciplinary team with strong industrial and academic partnerships, and you will benefit from a collaborative research context.

## Requirements

Applicants should have the following qualifications:

- MSc degree in computer science or engineering, aerospace or mechanical engineering, artificial intelligence, robotics, or a related field, with a specialisation in human-machine interaction.
- Experience or familiarity with human-subject research.
- Embracement of open science principles and modern communication tools.
- Ease with teamwork, willingness to attend conferences and scientific events, flexibility, and outreach in a multidisciplinary environment.
- Excellent command of the English language.

## Conditions of employment

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. 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://www.tudelft.nl/phd> for more information.

**Contract type:** Temporary, 4 years

## Employer

[Delft University of Technology](#)

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

[Faculty 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 to demonstrable economic and social benefits.

You will be part of the Cognitive Human-Robot Interaction Lab, within the Cognitive Robotics department. The main focus of the Cognitive Robotics department is the development of intelligent robots and vehicles that will advance mobility, productivity, and quality of life. Our 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 physical interaction of intelligent machines with humans. We combine fundamental research with work on physical demonstrators in areas such as self-driving vehicles, collaborative industrial robots, mobile manipulators, and haptic interfaces. Strong collaborations exist with cross-faculty institutes TU Delft Robotics Institute and TU Delft Transport Institute), our national robotic ecosystem (RoboValley, Holland Robotics), and international industry and academia. <http://www.cor.tudelft.nl/>

### **Additional information**

For more information about this position, please contact Dr.ir. Joost C.F. de Winter ([j.c.f.dewinter@tudelft.nl](mailto:j.c.f.dewinter@tudelft.nl)).

For more information about the conditions of employment, please contact Irina Bruckner, HR advisor ([application-3mE@tudelft.nl](mailto:application-3mE@tudelft.nl)).

To apply, please submit:

- a letter of motivation explaining why you are the right candidate for this project
- a CV with a grade list
- names and contact data of two references to be contacted.

All these items should be combined in one PDF document. Applications should be submitted by email at the earliest convenience to [application-3mE@tudelft.nl](mailto:application-3mE@tudelft.nl). When applying for this position, please refer to vacancy number 3mE19-42.

The review of applications will start on 1 June 2019 and continue until the position is filled. The starting date is negotiable.