Delft Center for Systems and Control

TU Delft
Delft University of Technology

Researcher on human-in-the-loop system design for automated driving

Apply Now

Challenge: Reliable and affordable sensing for driving automation.

Change: Synergy between human drivers & vehicular sensing systems.

Impact: Automated vehicles that can handle safety-critical situation.

Job description

Advanced driver assistance systems are key to enhancing road safety. One of the critical requirements for such systems is to reliably perceive the environment. The state-of-the-art sensors, however, are not ubiquitously deployed in driver assistance systems due to their high cost. On the other hand, simpler low-cost sensing solutions suffer from poor perception. In this project, you will address this gap by combining sensing capacities of the human driver and the driver assistance system, to develop sensing solutions that are both affordable and reliable.

Your aim will be to develop signal processing algorithms and interfaces to incorporate human driver in the sensing loop of automated driver assistance systems. Your work will leverage the unique cognitive abilities of humans controlling these systems to process complex signals and make informed real-time decisions. The project will lay the foundations for understanding how human interaction with signal processing systems impacts transparency and ethical considerations in deploying hybrid human-in-the-loop solutions.

In this project, whether as a junior researcher or a postdoctoral researcher, you will have the opportunity to contribute to the development of innovative human-in-the-loop sensing solutions. You will be able to develop your skills in designing innovative human-in-the-loop sensing solutions, rapid prototyping, and evaluation of your solutions in driving simulator experiments with human participants.

Requirements

Need to have:

- MSc (for Junior Researcher) or PhD (for Postdoc researcher) in signal processing, human factors, vehicle engineering, artificial intelligence, or related areas
- Open-mindedness and motivated interest in interdisciplinary research
- For postdoc candidates: Affinity with teaching and supervising students
- Solid programming skills

- Ability to take initiative
- Proficient in verbal and written English

In addition, experience with one or more of the following topics is considered a plus: driving simulator experiments with human participants, machine learning.

Conditions of employment

Salary and benefits are in accordance with the Collective Labour Agreement for Dutch Universities (based on scale 10: €3.226,00 - €5.090,00). Depending on your knowledge and experience, either as a junior research or postdoc, the corresponding step in scale 10 will be determined. Postdocs are positioned at a higher step within the scale compared to junior researchers. The TU Delft offers a customisable compensation package, discounts on health insurance, and a monthly work costs contribution. Flexible work schedules can be arranged.

For international applicants, TU Delft has the Coming to Delft Service. This service provides information for new international employees to help you prepare the relocation and to settle in the Netherlands. The Coming to Delft Service offers a Dual Career Programme for partners and they organise events to expand your (social) network.

This is a fixed-term, 1-year position open for candidates at either MSc level (research engineer) or PhD level (postdoc researcher). The expected starting date is between June and September 2024, but later starting date can also be negotiated.

TU Delft (Delft University of Technology)

Delft University of Technology is built on strong foundations. As creators of the world-famous Dutch waterworks and pioneers in biotech, TU Delft is a top international university combining science, engineering and design. It delivers world class results in education, research and innovation to address challenges in the areas of energy, climate, mobility, health and digital society. For generations, our engineers have proven to be entrepreneurial problem-solvers, both in business and in a social context.

At TU Delft we embrace diversity as one of our core values and we actively engage to be a university where you feel at home and can flourish. We value different perspectives and qualities. We believe this makes our work more innovative, the TU Delft community more vibrant and the world more just. Together, we imagine, invent and create solutions using technology to have a positive impact on a global scale. That is why we invite you to apply. Your application will receive fair consideration.

Challenge. Change. Impact!

Faculty Mechanical Engineering

From chip to ship. From machine to human being. From idea to solution. Driven by a deep-rooted desire to understand our environment and discover its underlying

mechanisms, research and education at the ME faculty focusses on fundamental understanding, design, production including application and product improvement, materials, processes and (mechanical) systems.

ME is a dynamic and innovative faculty with high-tech lab facilities and international reach. It's a large faculty but also versatile, so we can often make unique connections by combining different disciplines. This is reflected in ME's outstanding, state-of-the-art education, which trains students to become responsible and socially engaged engineers and scientists. We translate our knowledge and insights into solutions to societal issues, contributing to a sustainable society and to the development of prosperity and well-being. That is what unites us in pioneering research, inspiring education and (inter)national cooperation.

Click here to go to the website of the Faculty of Mechanical Engineering. Do you want to experience working at our faculty? These videos will introduce you to some of our researchers and their work.

Additional information

You will work in the Faculty of Mechanical Engingeering between Delft Center for Systems and Control and the Department of Cognitive Robotics, supported by Dr. Nitin Myers and Dr. Arkady Zgonnikov. You will be part of a young and vibrant research group at the department of Cognitive Robotics that focuses on human-robot interaction. We perform fundamental research and at the same time demonstrate the benefits of our solutions with robots in the real world.

For informal inquiries about this vacancy, please contact Nitin Myers (N.J.Myers@tudelft.nl) and Arkady Zgonnikov (A.Zgonnikov@tudelft.nl)

Application procedure

Are you interested in this vacancy? Please apply before **May 12, 2024** via the application button and upload the following documents as a part of your application:

- Cover letter including your motivation to apply for this position and a brief description of how you plan to contribute to this project
- Detailed CV, including a list of academic publications and contact information of three persons willing to provide a recommendation letter for you (no need to upload the letters, we will request them only in case you are shortlisted for this position)

A pre-employment screening can be part of the selection procedure.

You can apply online. We will not process applications sent by email and/or post.

Please do not contact us for unsolicited services.

Apply Now