



The Cognitive Robotics department at Delft University of Technology, The Netherlands, announce a vacancy for one
Postdoctoral Researcher

Shared Mobility-on-Demand under Uncertainty

Job description

Ride-sharing services are transforming urban mobility by providing timely and convenient transportation to anybody, anywhere, and anytime. These services present enormous potential for positive societal impacts with respect to pollution, energy consumption, congestion, etc. Yet, their full potential has not been reached and several challenges remain with regards to adaptability and predictability. In this project research will be conducted in dynamic vehicle routing methods (with ride-sharing) that are aimed at handling high uncertainty in travel time and demand, and that apply to heterogeneous vehicle fleets. The goal is to develop a novel algorithm for dynamic vehicle routing with a focus on large capacity vehicles (buses) and stochastic travel times. Focus will be on the combinatorial optimization methods for routing and assignment, which might be enhanced with machine learning to build probabilistic models of travel time.

The project is in collaboration with Didi Udian Technologies (Shenzhen) and our algorithms could be evaluated in realistic scenarios and/or with a real vehicle fleet. Cross collaborations also exist with the Amsterdam Institute for Advanced Metropolitan Solutions, other researchers from the TU Delft Transportation Institute and research on multi-robot systems. For a glimpse of our research see http://www.alonsomora.com/res/res_ridesharing.html

Requirements

The candidate has (or is close to complete) a PhD degree in operations research, optimization, transportation, robotics, systems and control, applied mathematics, artificial intelligence, machine learning, computer science, or a related field. The candidate shall have strong analytical and mathematic skills (preferably in combinatorial optimization). A very good command of the English language is required, as well as excellent communication skills and several publications in Q1 venues related to the field of research. Conversational command of Chinese language will be beneficial, although not required. One or more trips to Shenzhen are expected.

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. Contract duration 1 or 2 years.

Employer

You will be part of the *Autonomous Multi-Robots Lab* (<https://www.alonsomora.com>), 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

If you have specific questions about this position, please contact Prof. Javier Alonso-Mora, e-mail: J.AlonsoMora@tudelft.nl. Please do not send application emails here, but use the specified address below.

To apply, please submit:

- a letter of motivation explaining why you are the right candidate for this project,
- a detailed CV with a complete publication list,
- a copy of your top two publications,
- the names and contact addresses of two or three references.

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. When applying for this position, please refer to vacancy number **3mE19-14**.

The review of applications will start on March 15th 2019 and continue until the position is filled. The starting date is negotiable. If you are interested in more than one position in the Autonomous Multi-robots Lab, please submit a single application and indicate that in your letter of motivation.

Link to application website: www.academictransfer.com/52829