



Vision Team Robotics



A myriad of visions around robots exists, reflecting the hopes and worries from scientists, artists, philosophers and well... from you and me. These visions often diverge, but one thing is sure: robotic technologies will increasingly affect our daily lives. What might this look like, and how do we include diverse perspectives to jointly shape a desirable future around robotic technologies? In spring 2020, Rector Magnificus prof. Tim van der Hagen installed the TU Delft's Vision Team Robotics, in order to learn about perspectives that exist in society about the impact of robots on our daily lives. We selected three areas of life that will increasingly be impacted by robotic technologies: the private domain (robots that augment us), the work domain (robots that work with us) and the public domain (intelligent vehicles).

In the past 15 months, TU Delft scientists from multiple faculties invited various individuals who might be affected by robotic technologies for interactive meetings. We met with workers, trade union representatives, drivers, children...

We listened to them, discussed with them, and exposed them to the current robotic technologies we are working on.

In order to share what we've learned together during this journey, we curated these conversations in three different ways: an anthropological documentary (robots that augment us), a podcast (robots that work with us), and a set of cartoons (intelligent vehicles), all available on our website.

The booklet you read right now provides a teaser to these three tangible outputs of the Vision Team Robotics. Through different lenses these cover the diversity of hopes and concerns around robotic technologies, and we hope you enjoy exploring them as much as we did.

More information

<https://www.tudelft.nl/robotics-vision-team>



Core Team



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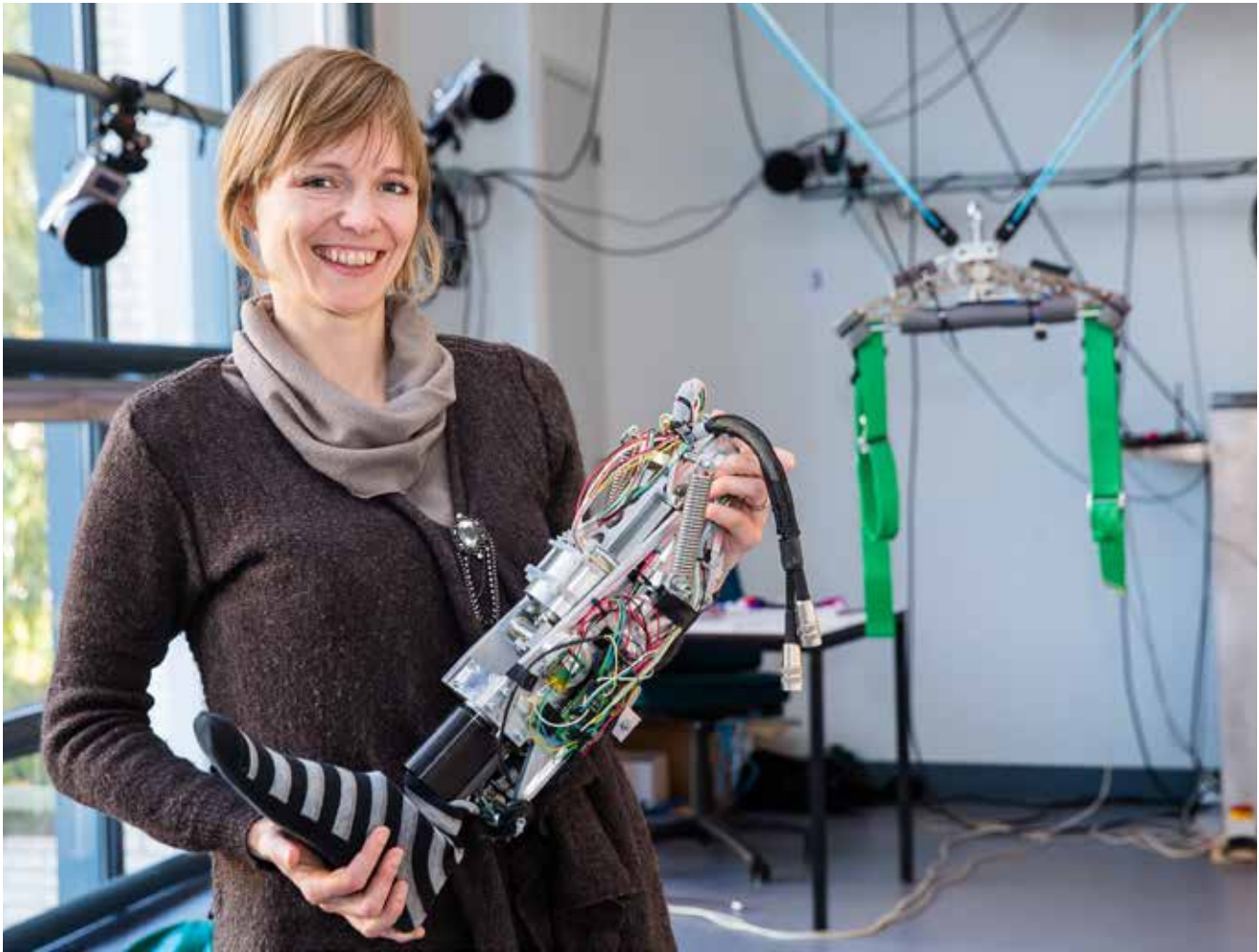


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HUMAN AUGMENTATION



How do people view robotic systems that are designed to support them in their everyday lives? As researchers working on social robots and assistive technologies, addressing this question makes us more aware of how our research aligns with society's perspective, and it can inspire us to explore new research questions.

We are particularly interested in how people think about human augmentation through technology and how it might empower and support people, but also enhance their abilities. For instance, how do people imagine robotics systems that socially interact with them? We would like to know whether people might find these robotic and smart technologies scary and what they are hesitant about. We also would like to know when and how they would like to use such technologies and for which purposes.

Documentary

In this film, Documentary maker Maaïke Broos follows a diverse group of people visiting the TU Delft and entering a dialogue on robotics for human augmentation. The visitors experience robots in live demonstrations and discuss and reflect with the researchers of the Human Augmentation team. The documentary shows how the perception of robots is coloured by personal experiences, expectations and needs.

More information and media

<https://www.tudelft.nl/robotics-vision-team/human-augmentation>



Researchers

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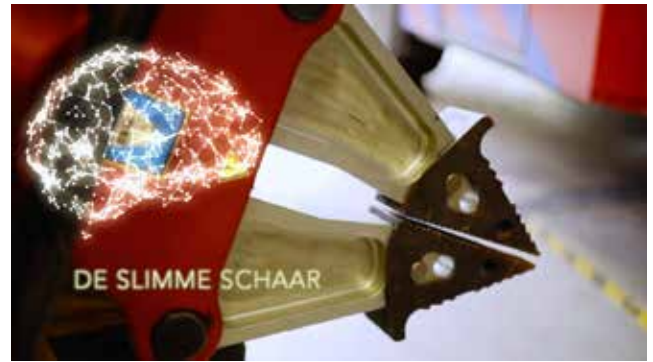
Associate Professor of Speech Technology and Delft Technology Fellow at the Intelligent Systems department (EWI)

Catholijn Jonker

Professor of Interactive Intelligence at Intelligent Systems department (EWI)

Heike Vallery

Professor of Human Motor Augmentation at the BioMechanical Engineering department (3ME)



"What is missing is the real connection between humans and technology. This motivates my research into developing AI that better matches people's experiences"

Catholijn Jonker

"Hearing the participants reflect on our research also triggered discussions amongst ourselves"

Marco Rozendaal

"The training equipment for rehabilitation that we are currently developing reaches only a small group of privileged people, and more focus needs to be on accessibility for everyone"

Heike Vallery



Some participants and their imaginations captured from the documentary.

ROBOTS AT WORK



We are aiming to understand the issues involved in having robots as part of the workforce. In particular, we want to unpack the dilemma of trying to control a technology that is useful to us, precisely because of its ability to act on its own. We have involved many stakeholders as sources of knowledge: employees, employers, policy makers, politicians, pupils, trade unions and associations and encourage them to speak together. This way we understand their interests, goals, values and driving forces, as well as points of tension and commonality.

Podcast

The podcast 'Career advice for Robots', produced by Hens Zimmerman, moves beyond stereotypes and clichés about robots at work. It tries to do justice to the vivid reality and delightful contradictions of working life - and the struggles of scientists and researchers to deal with that. The members of the Robotics at Work team will take you on a journey that gradually unfolds the dilemma of our human desire to control a technology that is useful to us, precisely because of its autonomy and ability to act on its own.

More information and media

<https://www.tudelft.nl/robotics-vision-team/robots-at-work>



Researchers

Doris Aschenbrenner

Professor in 'Digital Methods in Production' at Hochschule Aalen (and former Assistant Professor at the Faculty of Industrial Design Engineering)

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Jaimy Siebel

Founder and Managing Director of RoboHouse

Martin Klomp

Robotics Coordinator/Developer at the Cognitive Robotics department (3ME)

Madelaine Ley

PhD Candidate at the AIRLab Delft

Joost van de Loo

Filmmaker and Communications Specialist at RoboHouse



"If you are used to doing something in a group of people, and now you do it with a robot, a robot doesn't really talk back. That's how everything is getting more complex. [...] Working with robots requires completely different skills for people"

Bart Beima, participant

"Making robotization work is very much about people collaborating to make this happen"

Claudia Werker

"Effective use of robots in the future of work requires a holistic approach, that takes into consideration various perspectives, the systems of work, and the relationships within it"

Madelaine Ley



INTELLIGENT VEHICLES



Mobility in general touches everyone's life and the majority of people are drivers. Intelligent vehicles are therefore close to society. We would like to learn more about existing perspectives on the impact of intelligent vehicles on people and society.

We invited people from a variety of different organisations and governmental agencies for an interactive discussion. Participants came from different backgrounds, such as catering firms, insurance companies, the police, hackers, local and national government and various representative associations. They show a great interest in discussing the impact of intelligent vehicles on: road traffic efficiency, safety, inclusivity, and trust in technology.

Infographic

We collected a wide variety of views from the discussions of the twenty participants on four topics (Society, Safety, Mobility and Trust) and captured these views in illustrations made by Menah Wellen. For each topic, the illustration explores some views, concerns and hopes expressed in the discussion on that topic.

"People are enthusiastic about the prospect of having intelligent vehicles, but trust can be easily lost; it is a fragile commodity"

Workshop participant

More information and media

<https://www.tudelft.nl/robotics-vision-team/intelligent-vehicles>



Researchers

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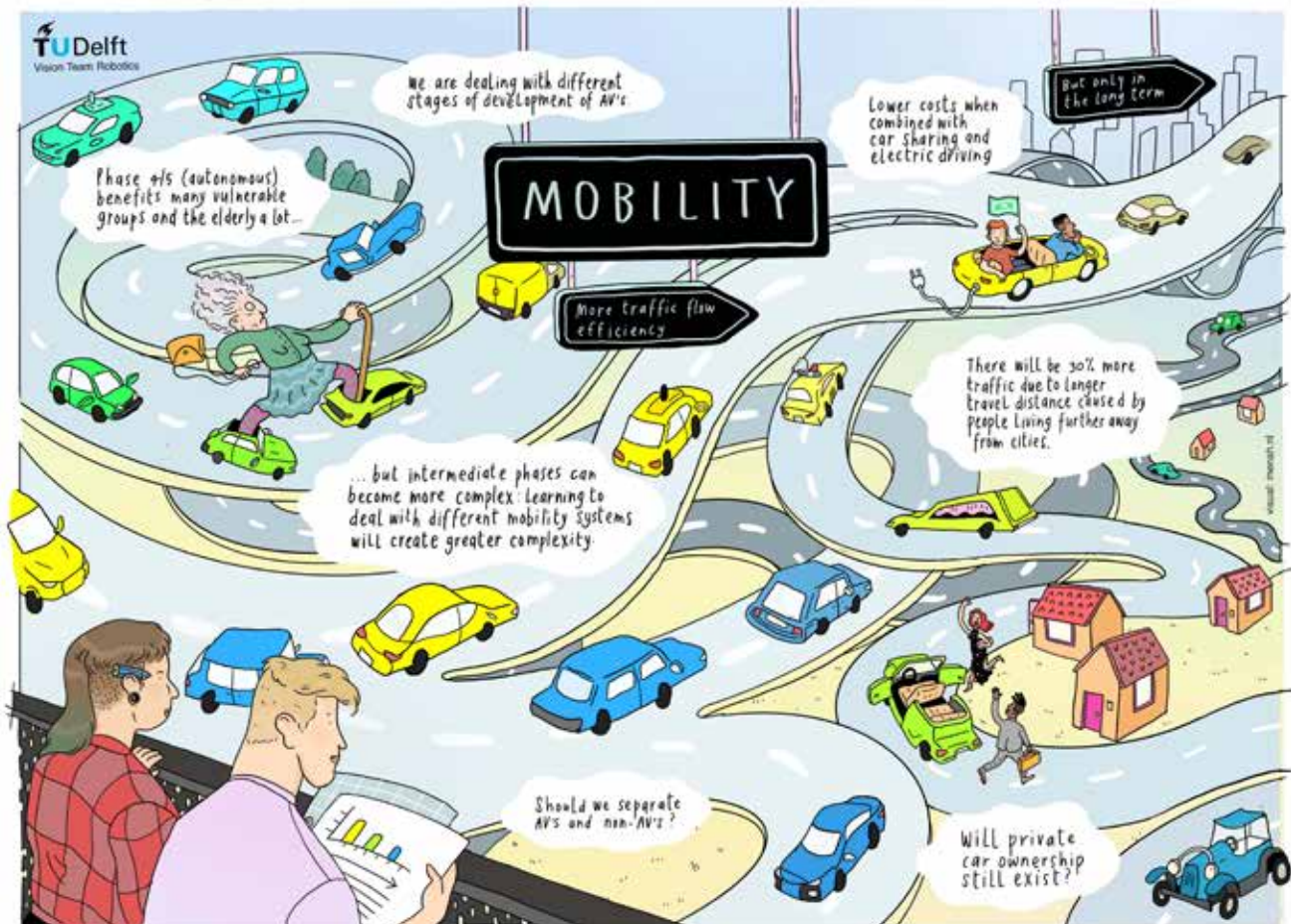
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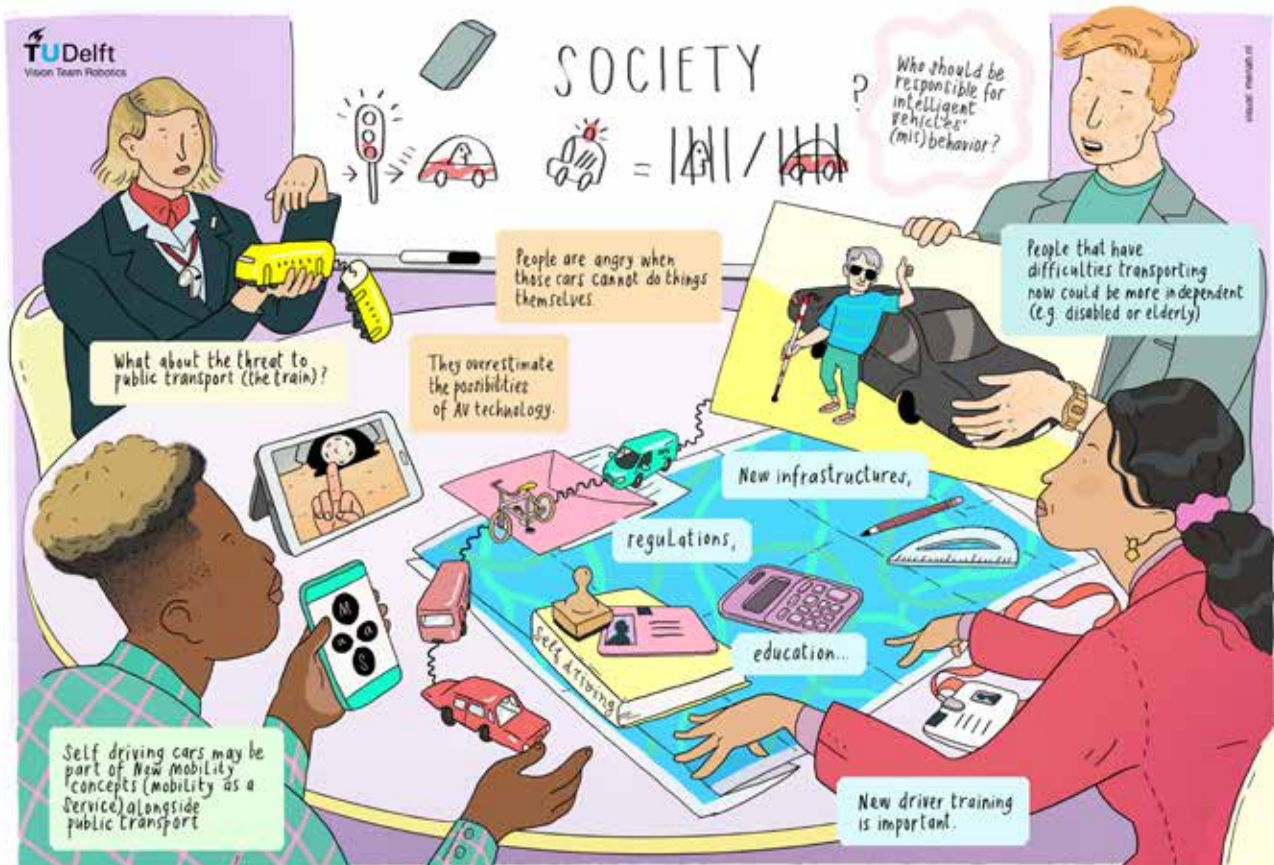
"The introduction and acceptance of intelligent vehicles in everyday life will go hand in hand with an integrated approach in which other aspects of society and life will transition, such as a change to the way insurance works, a change to the way public transport is operated and a change to urban design and open spaces"

Workshop participant



Illustrations: Menah Wellen

Expressed views from the session on Mobility: Intelligence vehicles will make traffic flows more efficient, yet may also attract more traffic, if people decide to live further away from work, or when they don't share public intelligent vehicles.



Expressed views from the session on Society: New groups of people may become able to travel with intelligent vehicles, such as disabled people, but intelligent vehicles may also diminish the availability of public transport.



Expressed views from the session on Trust: Over time, people can gradually build up trust in intelligent vehicles, yet this trust can be lost much faster, for example when an awful accident happens.



Expressed views from the session on Safety: Intelligent vehicles will reduce accidents caused by human error, but new types of accidents may in time emerge, say in less structured environments like old city centres.



