



## Special Session

### NEON – New Energy and Mobility outlook for the Netherlands

#### **Description:**

NEON project is a multidisciplinary research project run by several faculties in Eindhoven University of Technology. The project addresses the acceleration of future energy and mobility systems. Since mobility is inextricably linked to the energy system, addressing issues in the mobility system is pertinent to realize a swift energy transition. Papers to be discussed in this session range from micro-mobility solutions and EVs to mode choice behavior and what their roles are in the energy and mobility transitions in terms of sustainability.

As one may be able to deduce from the titles, the different papers may focus on different aspects of mobility and their relation to energy, suggesting the necessity for multidisciplinary research.

#### **Session Moderator:**

- Ir. Pim Labee, Ph.D. candidate, Eindhoven University of Technology UPT group

#### **Topics and Presenters:**

##### **Optimization-based Comparative Analysis of Docked and Dockless Micromobility Systems**

- Presenter: ir. Fabio Paparella, Ph.D. candidate, Eindhoven University of Technology CST group
- B. Sripanha, MSc student, Eindhoven University of Technology CST group
- Dr. Ir. T. Hofman, Assistant Professor, Eindhoven University of Technology CST group
- Dr. Ir. M. Salazar, Associate Professor, Eindhoven University of Technology CST group

##### **Explorative scenarios for the charging flexibility of electric vehicles based on realistic travel patterns**

- Presenter: Peter Hogeveen, researcher, Department of Mechanical Engineering, Eindhoven University of Technology
- V.A. Mosmuller, student, Department of Technology, Innovation and Society, Eindhoven University of Technology
- Prof. M. Steinbuch, Department of Mechanical Engineering, Eindhoven University of Technology
- Prof. G.P.J. Verbong, Department of Technology, Innovation and Society, Eindhoven University of Technology

##### **How rightsized shared autonomous electric vehicles could slash CO2 emissions and resource use while making cities more livable and transport more enjoyable**

- Presenter: Peter Hogeveen or Auke Hoekstra
- Peter Hogeveen, researcher, Department of Mechanical Engineering, Eindhoven University of Technology
- Ir. Pim Labee, Eindhoven University of Technology UPT group

##### **Modeling multimodal trips and their associated sub-trips**

- Presenter: Ir. Pim Labee, Ph.D. candidate, Eindhoven University of Technology UPT group
- Dr. S. Kim, Eindhoven University of Technology UPT group
- Prof. Dr. S. Rasouli, Eindhoven University of Technology UPT group

**A stated adaptation approach to assess mode change behavior of car drivers in presence of Park and Ride facilities**

- Presenter: Valeria Caiati, MSc, University researcher, Eindhoven University of Technology UPT group
- Prof. Dr. S. Rasouli, Eindhoven University of Technology UPT group

**Estimating availability effects in travel mode choice among e-bikes and other sustainable mobility services: Results of a stated portfolio choice experiment**

- Presenter: Xueting Ren, Ph.D. candidate, Eindhoven University of Technology UPT group
- Prof. Dr. S. Rasouli, Eindhoven University of Technology UPT group
- Prof. Dr. H.J.P. Timmermans, Nanjing University of Aeronautics and Astronautics
- Dr. Ir. A.D.A.M. Kemperman, Associate professor, Eindhoven University of Technology UPT group

**Role of service uncertainty in decision to use Demand responsive transport services, A stated adaptation choice experiment**

- Presenter: Shangqi Li, Ph.D. candidate, Eindhoven University of Technology UPT group
- Prof. Dr. S. Rasouli, Eindhoven University of Technology UPT group
- Prof. Dr. H.J.P. Timmermans, Nanjing University of Aeronautics and Astronautics

**Moderator.....**



**Ir. Pim Labee**

Pim Labee received his BSc in Architecture, Urbanism and Building Sciences and his MSc in Construction Management and Engineering. While doing the latter he focused on smart mobility in the built environment. He conducted his graduation research at the Netherlands Institute for Transport Policy Analysis, researching the possible impacts of MaaS on urban GHG emissions. He is currently a Ph.D. candidate in the Urban Planning and Transportation group, researching travel behavior.

**Optimization-based Comparative Analysis of Docked and Dockless Micromobility Systems**



**Ir. Fabio Paparella**

Fabio Paparella received both the BSc and MSc degree in mechanical engineering in 2017 and 2020 respectively, from the Politecnico di Milano. He carried out his Master thesis at NASA Jet Propulsion Laboratory, Pasadena, CA. He is currently a Ph.D. candidate at the Eindhoven University of Technology in the Control System Technology group. His research focuses on coordination of fleets of selfdriving vehicles for autonomous mobility-on-demand in urban environments.

**Explorative scenarios for the charging flexibility of electric vehicles based on realistic travel patterns**



**Ir. Peter Hogeveen**

Peter Hogeveen is researching the mobility and energy transition at the Eindhoven University of Technology. Additionally, he works at Zenmo Simulations where he aspires to accelerate the energy transition by building simulation models for policy makers that provide system insights written reports could never deliver. Over the last 6 years he has built expertise in agent-based modelling, object-oriented programming, automation and electrification of vehicles, and modelling of energy systems.

***How rightsized shared autonomous electric vehicles could slash CO2 emissions and resource use while making cities more livable and transport more enjoyable***



**Drs. Auke Hoekstra**

Auke Hoekstra besides a researcher also is the director of research agency Zenmo simulations and the project director of the multidisciplinary research project NEON: a New Energy and mobility Outlook for the Netherlands. While fascinated by electric vehicles and the complete energy transition as a whole, for NEON he'll play a part in the development of the integrated model.

***Modeling multimodal trips and their associated sub-trips***



**Ir. Pim Labee**

See CV from moderator.

***A stated adaptation approach to assess mode change behavior of car drivers in presence of Park and Ride facilities***



**Valeria Caiati**

Valeria has a background in environmental engineering, with a specialization on climate change and sustainability issues. Before starting her PhD studies, she worked for five years in international consultancy firm and research institutes, in Italy. In these experiences she has been involved in studies and projects related to smart cities, with a specific focus on sustainable urban mobility, urban planning and the role of ICTs in sustainable development. In May 2016 she joined the Urban Planning Group in TU/e as a doctoral candidate.

***Estimating availability effects in travel mode choice among e-bikes and other sustainable mobility services: Results of a stated portfolio choice experiment***



**Xueting Ren**

Xueting first completed her bachelors in urban and rural planning at the Northeast Forestry University, and after that continued on this track for her masters degree at Beijing Jiatong University. When she completed her masters in 2018, she started as a doctoral candidate in the urban planning and transportation group at the Eindhoven University of Technology.

***Role of service uncertainty in decision to use Demand responsive transport services, A stated adaptation choice experiment***



**Shangqi Li**

After having completed his master's degree in logistics engineering in 2018, Shangqi started as a doctoral candidate in the urban planning and transportation group at the Eindhoven University of Technology.