

RESOURCES

***GRAND
CHALLENGE
ACCEPTED
2022***



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9:30 - 10:00 Walk-in | *Restaurant 2nd Floor*

10:00-10:15 Welcome by Haiko van der Voort | *Spanish Stairs*

10:15-11:00 Key Note: Nuclear energy, resources and public values
by Behnam Teabi | *Spanish Stairs*

11:00-11:15 Coffee Break | *Restaurant 2nd Floor*

11:15-12:15 Thesis Talks: Justice & Equity | *Lab 1*

11:15-12:15 Thesis Talks: Water Management | *Lab 2*

12:15-13:00 Lunch | *Restaurant 2nd Floor*

13:00-14:00 Workshops | *TBA*

13:00-15:00 Chilling Room | *Common Room 5th Floor*

14:00-15:00 Thesis Talks: Data to guide Policy Measures | *Lab 1*

14:00-15:00 Thesis Talks: Sustainability Policies | *Lab 2*

15:00-15:15 Coffee Break | *Restaurant 2nd Floor*

15:00-16:00 Alumni Talks: Data in a Professional Career | *Lab 1*

15:00-16:00 Alumni Talks: Societal Values and Water | *Lab 2*

16:00-17:00 Launch of EPA Graduates to Society | *Spanish Stairs*

17:15-22:00 Beach Party | *Culpepper Schevening*



Key Note: Nuclear energy, resources and public values by Behnam Teabi | 10:15-11:00 Spanish Stairs

Behnam Teabi is Professor of Energy & Climate Ethics and Scientific Director of the Safety & Security Institute at Delft University of Technology. Teabi studied Material Science and Engineering (2006) and received his Ph.D. in Philosophy of Technology (2010). He was further affiliated with Belfer Center for Science and International Affairs at Harvard University (2014-2020). Teabi is the co-Editor-in-Chief of Science and Engineering Ethics, and co-editor a volume on The Ethics of Nuclear Energy, published with Cambridge University Press (2015) and the author of a monograph on Ethics and Engineering, forthcoming with Cambridge University Press (2021). He is also a member of The Young Academy of the Royal Netherlands Academy of Arts and Sciences (in Dutch: DJA-KNAW) and a member of the OECD Expert Group on 'Transdisciplinary Research for Addressing Global Challenges'.

KEY NOTE



Reconciling economic development and social justice - Auriane Tecourt | 11:15-11:30

Lab 1

Auriane will present her thesis topic in the context of the EPA curriculum and how it ties everything together. The topic: How can we reconcile economic development, climate change resilience and social justice/equality in a city? Illustrated with the example of the transportation network in Paris, Copenhagen and London.



AI use in the public sector - Zara-Vé van Tetterode | 11:45-12:00 Lab 1



Evaluation of a persuasive game for tackling sexual violence among students in Dutch universities - Francien Baijanova | 12:00-12:15 Lab 1

JUSTICE & EQUITY
MODERATED BY KATERINA MAKROGAMVRAKI



Escaping Suburbia: A Case Study on Microtransit and Access Equity in the Minneapolis-St. Paul Metropolitan Area - Alma Liezenga | 11:30-11:45 Lab 1

More and more people are living in cities. As these cities grow, the benefits of living in them are increasingly unequally distributed. One factor that can turn the tide of glooming urban inequality is equitable access to opportunities. Designing policies for equitable access requires taking into account several components that impact accessibility: (i) land-use, (ii) transportation, (iii) individual needs and opportunities, and (iv) temporal constraints. In this research, the interaction between a novel mode of public transport, microtransit, and the first three components of accessibility is investigated. The accessibility implications of microtransit in the case study area: the Southern suburbs of the Minneapolis-St. Paul metropolitan, are assessed. It is concluded that microtransit manages to reach vulnerable rider groups and interacts with the land-use environment by pairing residential areas with commercial centers. Microtransit also interacts with other modes of transit by adding both extra demand and lowering the demand for ride-hailing and personal car use predominantly. Microtransit rarely seems to replace public transit or walking alternatives. Overall, it is found that microtransit does significantly increase accessibility levels in the case study area and especially impacts groups with low car ownership. Lastly, the benefits of microtransit are more fairly distributed than those of traditional transit in the studied area. This research demonstrates the positive access equity impact of microtransit and suggests further research into choice-riders, the application of microtransit in urban (core) and rural environments, and the interplay between public transit and microtransit, as well as policy interventions for policy-makers and transit providers.

JUSTICE & EQUITY
MODERATED BY KATERINA MAKROGAMVRAKI



Exploring trade-offs in operational water management - Yasin Sari | 11:15-11:35 Lab 2

Investigating the trade-offs between different water uses of upstream and downstream countries in the Eastern Nile Basin. Used many objective optimisation to find alternative reservoir control policies. Explored the feasibility of cooperative solutions under varying uncertain states of the world.



Private Flood Adaptation and Social Networks - Thorid Wagenblast | 11:35-11:55 Lab 2

Flooding is one of the most devastating climate hazards to which adaptation is needed. There are numerous private adaptation measures that can be taken, and there is a good understanding of what influences households in their decision to adapt. Fear and coping appraisal, as well as the social environment, are important. Especially the role of the social network has not been studied systematically. An agent-based model is built using data from Houston, Texas, US, to increase understanding of social networks' impact on private flood adaptation. The interaction of households within different proxies of social networks, the influence of generic policies, and the effects on flood preparedness are investigated. It was found that the consideration of networks can influence the adaptation decision significantly. However, differences depend on the social network configuration, where more homogeneous networks result in more changes. Policies influencing perceptions can be very effective in steering the general opinion and, hence, the uptake of protective measures.

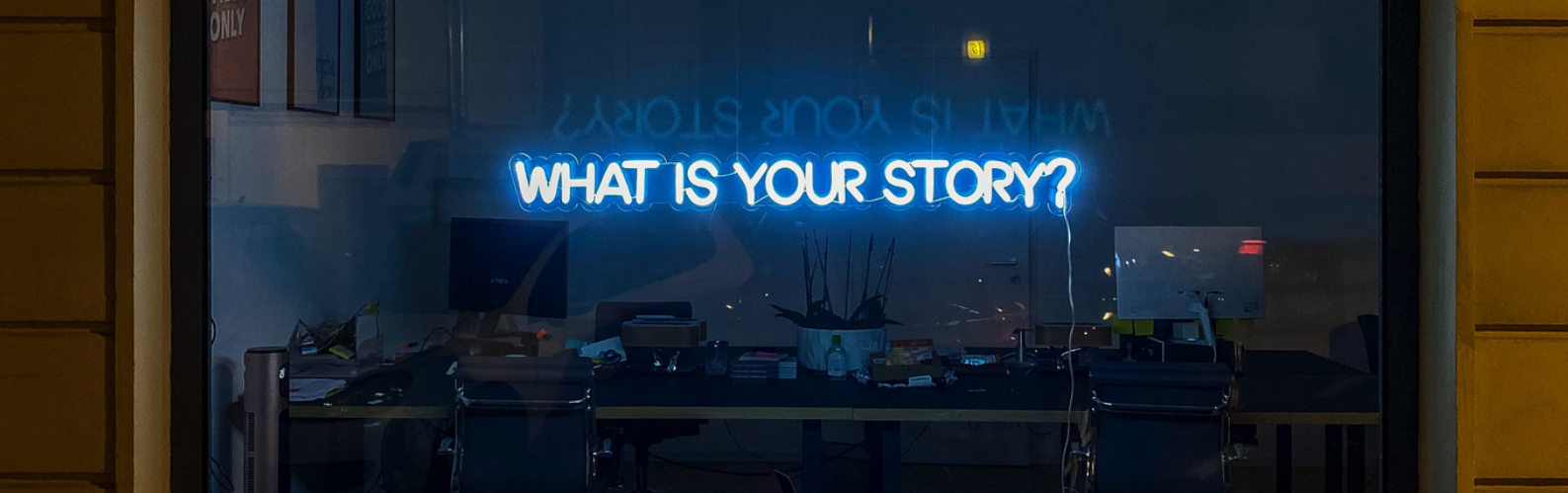
***WATER MANAGEMENT
MODERATED BY GURVINDER ARORA***



Factors influencing the adoption of adaptive approaches by water utilities - Emily Ryan | 11:55-12:15 Lab 2

Over recent decades there have been advances in the research behind adaptive policy approaches. More recently, emerging qualitative approaches for managing deep uncertainty has drawn the attention of planners in the water industry, particularly in water utilities. Despite interest from both the water industry and the research community to see these novel approaches applied, there have been limited applications, and no published guidance to support the operationalization of these approaches in water utilities. This thesis seeks to bridge this gap by answering the question: “What are the factors influencing the adoption of adaptive policy approaches by water utilities?” To answer this question, a research by design approach was used to understand current barriers and enablers to the adoption of such methods in water utilities, and to design a framework to support adoption of adaptive policy. This work was conducted through a grounded theory analysis of interviews of relevant water utility practitioners in Australia and the Netherlands and members of the decision making under deep uncertainty and adaptive planning research community. The outcome of this study is a maturity framework of barriers and enablers to the uptake of adaptive approaches in water utilities, designed to support utilities and researchers in evaluating their level of adoption and to identify strategies for increasing the implementation of adaptive approaches where appropriate.

WATER MANAGEMENT MODERATED BY GURVINDER ARORA



TELLING STORIES TO DECISION MAKERS - JONATHAN TALBOTT

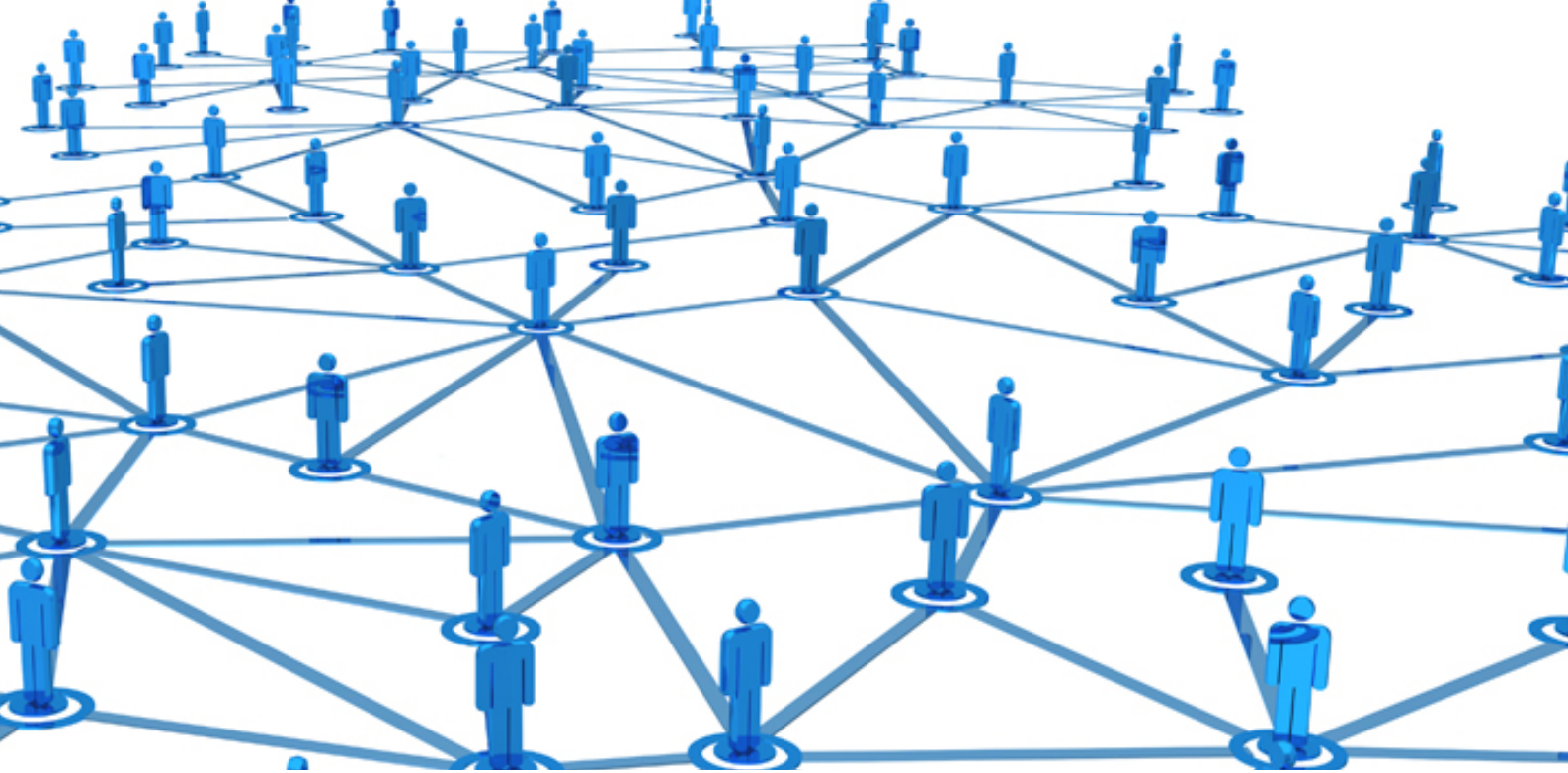


**FUTURE OF FOOD: ALGAE AS A SUSTAINABLE ALTERNATIVE - GURVINDER ARORA
(MANAGER POLICY STRATEGY DELOITTE)**



PLAYING GAMES - DORIS BOSCHMA FROM THE GAME LAB

WORKSHOPS



Differences between synthetic and microdata as input for large scale epidemiological Agent Based Models - Hidde Bijlard | 14:00-14:15 Lab 1

My thesis focuses on the differences between synthetic and microdata as input for large-scale epidemiological ABM's. Well that is a mouthful, isn't it? Synthetic data is generated data that tries to mimic a population as accurately as possible, in this case, the population of the Hague. Why do you want this? Data on the individual level, also known as microdata, is highly privacy sensitive and is not publicly available. This makes it difficult to work with, both from a financial (personal data is expensive!) and practical (you have to take GDPR regulations into account) perspective.

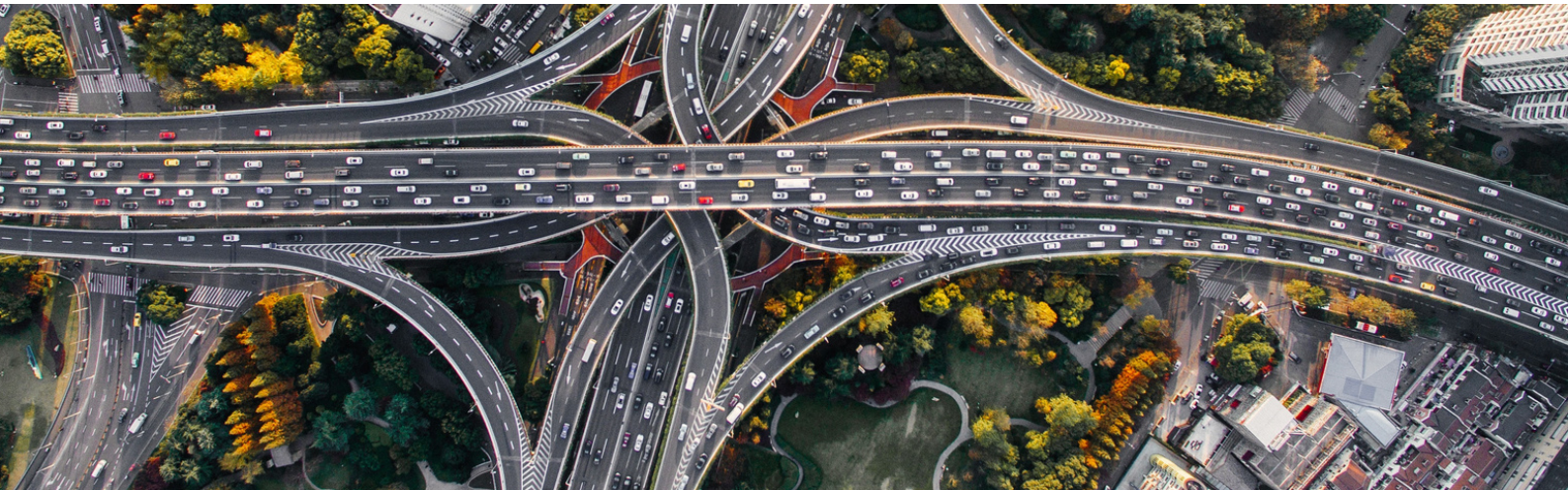
The synthetic population we generate as input for the HERoS (an epidemiological ABM) model is based on open data. However, this data is aggregated, and we need individual-level data. Hence, an algorithm was put in place that translates aggregated to individual-level data. The resulting dataset is of lower quality than actual micro-level data, but it does not suffer from privacy issues.

My thesis focuses on assessing the quality of this synthetic dataset. The research is divided into two sections. The first one is the statistical comparison between synthetic datasets and microdatasets. Where do I obtain microdatasets? At the CBS, which have data on everything. The second part of the research is assessing the impact of the population quality on model outcomes. This is done by running the model with a variety of different agent population, and then determine the differences between the model outcomes.

***DATA TO GUIDE POLICY
MEASURES
MODERATED BY IRENE VAN DOFFELAAR***

Urban commons as a driver of social inclusion: a socio-spatial analysis of the accessibility to urban commons in Amsterdam - Ettore Arpini | 14:40-15:00 Lab 1

As the urban population grows worldwide and cities are becoming increasingly unequal and segregated, Urban Commons emerge as a potential driver of inclusion and resilience for city dwellers. Urban Commons can promote social, environmental, and economic resilience, and can act as a haven for the excluded. However, it is still unclear whether the benefits of Urban Commons are ultimately accessible to the culturally and socioeconomically vulnerable. This master's thesis explores what constitutes material and immaterial barriers to accessing Urban Commons to understand whether these initiatives can work, policy-wise, as a driver of social inclusion. 29 Urban Commons in Amsterdam were selected as a case study. A quantitative geo-spatial analysis was conducted to evaluate the material accessibility to each initiative. In parallel, commoners were surveyed about their perception of immaterial barriers and benefits of commoning. Finally, a representative of the municipality of Amsterdam was interviewed to assess the potential challenges and benefits of policies involving Urban Commons.



Predicting airquality around highways - Tamar Vooijs | 14:20-14:40 Lab 1

My thesis is about predicting air quality around highways. The thesis is written in collaboration with a start-up in Delft called Whiffle. They have developed an atmospheric model that makes local weather forecasts. I try to use this model to predict air quality and compare it with two benchmark models.

**DATA TO GUIDE POLICY
MEASURES
MODERATED BY IRENE VAN DOFFELAAR**



Evaluating the role of demand response in reducing the grid dependency of a Dutch energy community having both residential and non-residential members - Anmol Soni | 14:00- 14:15 Lab 2

This study is focused on community energy projects in the Netherlands. The Netherlands proudly hosts over 487 energy communities and stands third in the number of community energy projects in the EU). However, the full potential of community energy projects in the Netherlands is not unleashed yet, as many houses are yet to be connected to these energy communities. Moreover, existing studies on community energy projects primarily focus on residential community projects with little to no inclusion of non-residential community members such as small and medium enterprises. Including non-residential community members such as SMEs, offices, and schools with complementing demand profiles with flexible loads can help the energy community leverage demand response policies.

This research focuses on evaluating the role of demand response in reducing the grid dependency of a Dutch energy community with residential and non-residential community members. Non-residential community members support the demand response in energy communities through their complementary demand profile. Moreover, the impact of increasing the demand flexibility for community members by using behind-the-meter storage is also evaluated in this research. This study uses agent-based modeling as the research approach to answer the research questions through model experimentation.

An agent-based model skeleton of the energy community is created by adapting the XLRM framework. This model simulates two real-life inspired energy community setups for performing experiments on them. Experiments through under different scenarios are performed on these energy community setups to answer the research questions.

SUSTAINABILITY POLICIES
MODERATED BY INGO SCHÖNWANDT



Exploring the impact of climate change policies post-COP26 on the development of the global South - Marya El Malki | 14:40-15:00 Lab 2

Exploring the Impact of Climate Change Policies Post-COP26 on the Development of the Global South” and it covers topics such as: (1) Climate and Energy Modeling, (2) Green colonialism and inequalities between the Global North and South and (3) Political Economy of Coal.



Transport modelling of sustainable mobility policies - David Matheus Hernandez | 14:20-14:40 Lab 2

My thesis is about improving transport modelling with the aim of using these models to evaluate sustainable mobility policies.

SUSTAINABILITY POLICIES ***MODERATED BY INGO SCHÖNWANDT***



Data and Start-ups at Techleap.nl - Sabine Kerssens | 15:00-15:20 Lab 1

Sabine Kerssens works for non-profit Techleap where she helps startups accelerate technological solutions for the grand challenges. Startups develop risky business models in a complex system with universities, incubators, venture capitalists, and many more players. She will show you the data to understand today's young innovation system.

OOPKOP
Het platform voor mentaal fitte werknemers



Lead Developer at OOPKOP - Tony Reijm | 15:20-15:40 Lab 1

OOPKOP is a marketplace wherein supply and demand for mental health issues are connected. Tony elaborates on how stress impacts health, economics and culture at a micro and macro scale, framing stress as a wicked problem.

S Y S T E M I Q

Associate at Systemiq Ltd - Shajeeshan Lingeswaran | 15:40-16:00 Lab 1

Shajeeshan works at Systemiq, a collaborative system designer and system developer for global challenges.

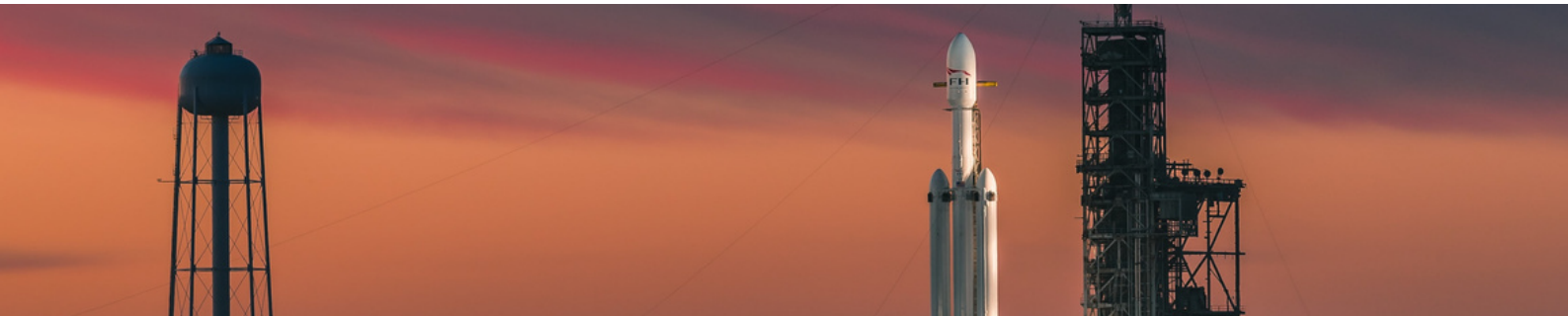
***ALUMNI TALKS: DATA IN A
PROFESSIONAL CAREER
MODERATED BY TRIVIK VERMA***

Witteveen

Bos

Environmental and societal impact expert at Witteveen + Bos - Cyntha Nijmeijer | 15:00-15:20 Lab 2

Siltation, aggravated by land erosion, has made water reservoirs (used for drinking water, irrigation, and industrial activities) in Burkina Faso shallower, creating problems with water quantity and quality. At the EPA conference, we will discuss the challenges associated with rehabilitating these reservoirs.



Research associate at the institute for the protection of terrestrial infrastructure of the German aerospace center - Ingo Schonwandt | 15:20-15:40 Lab 2

The resilience of critical infrastructure is assessed with key performance indicators that are unavoidably based on the underlying societal values of the stakeholders. Though societal values are under constant change and determine the resilience analysis of critical infrastructure they are difficult to consider in decision-making approaches. In a first attempt using the lake problem we could show that even slight changes in the societal values can lead to significantly different expectations about the behavior of the lake model.



Rabobank

Risk manager at Rabobank - Arushi Gupta | 15:40-16:00 Lab 2

Arushi Gupta incorporates Environmental Sustainability Goal risks (ESG-risks) in the portfolio of Rabobank's clients by using data science. What is the risk profile of loans involving sustainability considerations? Calculating risk profiles is a challenge in itself. Moreover, there is information asymmetry between bank and clients about financial risks.

ALUMNI TALKS: SOCIETAL VALUES AND WATER

MODERATED BY HAIKO VAN DER VOORT