



## Relating Systems Thinking and Design (RSD12) Symposium | October 6–20, 2023

### **Mapping perspectives on safety in an AI-driven smart city**

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Increasingly, safety is among the most common justifications for the “smartification” of cities. Yet, interpretation of what “safety” is depends on whose perspective we take. A police officer, a city official, a tourist, a security camera, or a seagull each have a different systemic perspective on what makes the city “safe” (Butot et al, 2020).

In this workshop we approach diverse perspectives on public safety within the realm of AI-driven smart cities. We use what we call “hub and spoke diagrams” to discover hidden dimensions and relationships between (human/non-human, living/non-living, physical/virtual) urban actors. Developed as a way of understanding “AI-cologies” (Jacobs, van Houdt, & coons, under review), the construction of these hub and spoke diagrams presents an opportunity to query not only the connections between things, but the connections to things.

Our method is positioned in relation to other ways of understanding and visualizing complex sociotechnical systems. We follow actor network theory (ANT) in the view that society is “fibrous, thread-like, wiry, stringy, ropy” (Latour, 1996, p.370). However, we position our method modestly: an attempt to see a cross-section of the rope, as it is represented by the mere act of one object influencing and being influenced by its many colleagues. We make use of some of the ideas of the network, such as Latour's notion that scale and order are not externally imposed, and that hierarchies of objects are not inherently already present. Because our focus is on which actors act on and are acted on by one (smart) object, there is little hierarchy and all nodes are rich in connections. For example, seagulls and governmental agencies are both relevant to the existence and functioning of a lamp post, and the act of attempting to include them both

allows us to consider what their individual roles may be, without taking the additional step of making a judgment about the nature of their relationship. The map is a tool for thinking about which entities are present, and giving them an equal weight.

Throughout the workshop we will challenge assumptions about the relationship between safety and technology, scrutinize the involved ethical dimensions, and question technological determinism. Through that we aim to unearth a deeper understanding of the intricate interplay between AI and urban safety, approached through the collection of perspectives of human and non-human actants in the city.

Next to its content dimension, the workshop also explores the pragmatics of using the hub and spoke diagrams as a tool for systemic enquiry, and their potential for systemic design.

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KEYWORDS: Safety Perspectives, AI-driven Smart Cities, Hub and Spoke Diagrams, Actor Network Theory, Urban Safety Dynamics

RSD TOPICS: Mapping & Modelling, Methods & Methodology, Sociotechnical Systems

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## **Workshop plan**

### **Round of Introductions (10 minutes)**

#### **Introduction to the Topic, Method and Example (10 minutes)**

- We present a brief overview of the workshop's objectives, relevance and the hub and the hub and spokes method.
- We provide an example to illustrate the workshop premises.

#### **Mapping AI-Object Interactions (20 minutes)**

- Participants work in sub-groups on cases from their own experience or project.
- They create a hub-and-spoke map of their chosen AI-object, illustrating the object at the center and various actors or elements it comes in contact with in its context.

#### **Sharing and Discussion (20 minutes)**

- Each group presents their AI-map to the entire workshop.
- Together we identify concentrations of actors and elements in the maps that stand out across cases.
- We outline the safety and ethical implications that arise from the interactions depicted in the maps.

#### **Wrap-up and Reflection (30 minutes)**

- All participants engage in a group reflection on the workshop's main insights and takeaways, Participants and workshop leaders share their thoughts and observations
- The following questions serve as discussion prompts:

- What kinds of perspectives on safety do the maps created in the workshop reveal?
- How do the maps reveal (w)holes and scales in AI-object interactions?
- What is the relationship between these perspectives and potential policy implications?.

## Key References

Butot, V., Bayerl, P. S., Jacobs, G., & de Haan, F. (2020). Citizen repertoires of smart urban safety: Perspectives from Rotterdam, the Netherlands. *Technological Forecasting and Social Change*, 158, 120164.

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## Facilitator profiles

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ginger “all-lower-case” coons is an educator, researcher and designer who studies and intervenes in the intersections of individuality, mass standards, and new (production) technologies. She is interested in the place of the user in the production process, and how individuals take control of the goods they use. She has a multi-disciplinary educational background: a BFA (2009) in design from Concordia University (Montreal), and an MI (2011) and PhD (2016) in information from the University of Toronto, where she was a member of the Critical Making Lab and the Semaphore Research Cluster on Mobile and Pervasive Computing. A founding editor of Libre Graphics magazine (2010-2015), ginger is an active advocate for Free/Libre and Open Source Software in art and design. She is currently a research lecturer in Commercial Practices at WdKA, and a senior researcher in the AI-MAPS consortium.

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Tomasz Jaskiewicz is Professor (lector) of Civic Prototyping at the Rotterdam University of Applied Sciences and Design Fellow in Prototyping Complexity at the Faculty of Industrial Design Engineering at the TU Delft. Tomasz' core belief is that technological innovation should be an inclusive and democratic process. To this end, his research revolves around developing new tools, methods and strategies supporting designers and non-professionals in iterative prototyping with digital technologies. His work is strongly influenced by his background in architecture and urban design, experience of running and failing a startup, and a life-long passion for building quick-and-dirty interactive prototypes.