

Towards *Smart Cities*: Ethical and Social issues in the development and implementation of Artificial Intelligence-powered technologies in urban contexts

Background

Although extensively defined and discussed, the *Smart City* concept is hardly universal. The interpretations and perspectives adopted are highly connected with contextual circumstances. These interpretations vary from city to city, country to country and can integrate or manifest through one or many systems and layers that define urban complexity. For instance, it depends on the level of development, willingness to innovate and change, available resources and stakeholders' engagement (Ahvenniemi, Huovila, Pinto-Seppä, & Airaksinen, 2017; Kummitha & Crutzen, 2017).

A *Smart City* tends to embody an ideal vision for the city where Internet of Things (IoT), Information and Communication Technologies (ICT) and Artificial Intelligence (AI) are embedded infrastructures, fostering connectivity, sustainability and resilience. Even though it is still difficult to picture exactly how a fully implemented smart city would look like, ideas for utopias and prototypes exist. Additionally, experiments and small scale proposals based on frontier technologies and AI are being tested and implemented.

Expected goals

Drawing upon past literature and using a case study, this thesis aims to analyse current initiatives fostered by stakeholders for the implementation of AI-enabled technologies in urban contexts.

Possible research questions include:

- Can Smart city approaches efficiently handle existing urban issues?
- How can the concept foster human centred cities?
- What are the challenges in the deployment and acceptance of AI-enabled technologies in urban settings?

Profile

Enthusiasm in pursuing interdisciplinary research in AI and urban studies.

Contact

If interested please contact catarina.fontes@tum.de or contact the IEAI Office ieai@mcts.tum.de.

Recommended literature

Ahvenniemi, H., Huovila, A., Pinto-Seppä, I., & Airaksinen, M. (2017). What are the differences between sustainable and smart cities? *Cities*, 60, 234-245. doi:<https://doi.org/10.1016/j.cities.2016.09.009>.

ITU-T. (2020). Accelerating city transformation using frontier technologies. (*ITU-T*), *U4SSC Deliverables, United Nations*

ITU-T. (2020). Blockchain for smart sustainable cities (*ITU-T*), *U4SSC Deliverables, United Nations*

Kummitha, R., & Crutzen, N. (2017). How do we understand smart cities? An evolutionary perspective. *Cities*, 67, 43-52. doi:<https://doi.org/10.1016/j.cities.2017.04.010>

Manville, C. (2014). Mapping Smart Cities in the EU. Retrieved from <https://tinyurl.com/lr9ffun>

We are looking forward to your application!