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Federico Cugurullo
Trinity College Dublin

Sarah Barns
RMIT University

Vincent J. Del Casino
San Jose State University, provost@sjsu.edu

Natalie M. Gulsrud
Københavns Universitet

Tan Yigitcanlar
Queensland University of Technology

See next page for additional authors

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Masaru Yarime,
Hong Kong University of Science and Technology, Hong Kong SAR, China

*CORRESPONDENCE
Federico Cugurullo
✉ cugurulf@tcd.ie

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Editorial: The governance of artificial intelligence in the "autonomous city"

Federico Cugurullo[1]*, Sarah Barns[2], Vincent J. Del Casino Jr.[3], Natalie M. Gulsrud[4], Tan Yigitcanlar[5] and Xiaoling Zhang[6]

[1]Department of Geography, Trinity College Dublin, Dublin, Ireland, [2]School of Global, Urban and Social Studies, RMIT University, Melbourne, VIC, Australia, [3]Department of Urban and Regional Development, San Jose State University, San Jose, CA, United States, [4]Department of Geosciences and Natural Resource Management, University of Copenhagen, Copenhagen, Denmark, [5]School of Architecture and Built Environment, Queensland University of Technology, Brisbane, QLD, Australia, [6]Department of Public and International Affairs, City University of Hong Kong, Kowloon, Hong Kong SAR, China

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Editorial on the Research Topic
The governance of artificial intelligence in the "autonomous city"

Artificial intelligence (AI) is now mediating key urban services and infrastructures (Barns, 2021; Yigitcanlar et al., 2023a). As portrayed in recent studies, the "autonomous city" (also known as the "algorithmic city") can be understood as a city where urban artificial intelligences perform tasks and take on roles which have traditionally been the domain of humans (Cugurullo, 2021; Son et al., 2023). For example, while autonomous cars transport people and drones deliver goods, large-scale AIs, such as *city brains,* can potentially govern entire cities. This literature stakes out a number of questions related to the meaning of intelligence, for both humans and machines. For instance, we have to ask what human intelligence means, as we seek to define AI at the same time (Lynch and Del Casino, 2020). Moreover, as humans are shifted to new sectors of the economy or pushed aside by algorithms creating new ways of seeing and governing the city, we need to ask what kinds of cities we are making when increasingly autonomous systems are operating in place of human decisions.

This Research Topic focuses on the governance of the autonomous city, from two interrelated perspectives. First, it develops an empirical and theoretical understanding of the emerging forms of governance that are enabled by urban artificial intelligences, as well as how the socio-political and economic structures of urban (human) life are starting to being changed in relation to AI. On these terms, this Research Topic begins to explore and chart the complex political processes, stakeholder networks, logics and policies through which autonomous cars, urban robots and city brains, for example, are integrated into cities and how such emergences are complementing and, at times, replacing existing urban infrastructures and services. Second, the contributors show through multiple case studies how AI is employed in urban governance, by examining how different urban artificial intelligences take on responsibility for urban domains ranging from transport to health and from planning to security.

Overall, our impression is that the "smart city" paradigm, which has characterized the configuration and governance of a myriad of cities for almost half a century, does not seem to fully hold anymore in the age of AI. Although premised upon the idea that technology can be a powerful medium to improve urban governance, the vision of smart cities has implicitly

had human policymakers at its core—i.e., human agents who employ various smart devices as tools to increase the efficiency of urban services (Palmini and Cugurullo, 2023). The intelligence undergirding "smart cities" was largely human-derived. AI is changing this status quo. Many of the urban artificial intelligences discussed in this Research Topic do not need human inputs to function and often operate in an unsupervised manner. This is not to say that smart cities are going to disappear. Instead, what we want to stress is that the advent of AI elevates the need for further empirical research on the operation of urban AIs and their autonomous decision-making capacities, bringing into question some of the theoretical foundations of the smart city model. For instance, exploring the concept of "collaborative AI" in the context of smart city governance is critical (Wiesmüller and Bauer, 2023) and what *intelligence* means more broadly (Lynch and Del Casino, 2020).

We also note that the emergence of AI in urban governance is generating new ethical questions. Urban artificial intelligences will be increasingly dealing with complex moral decisions, including thorny *trolley problems* such as the inevitability of distributing harm when AI-driven cars crash (Awad et al., 2018). In a city whose services are mediated and controlled by AI, we find non-human intelligences in the position of deciding what the right course of action may be, even as the underlying algorithm was originally designed by humans. This capacity raises new challenges for governance, because there is no guarantee that AI-made decisions will be, by default, aligned with human values. Likewise, policy settings are also influenced by wider public concern and fear of AI, requiring appropriate policy and ethical responses to the presence of autonomous decision-making agents in cities (Cugurullo and Acheampong, 2023; Yigitcanlar et al., 2023b). While completely autonomous cities might be far away in the future, the emergent problems they pose are certainly already present. This Research Topic points to the necessity of searching for effective ways to govern urban AI, while also opening up the conversation of how human and artificial intelligences will develop over time in relation to each other in the city.

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FC: Conceptualization, Writing—original draft. SB: Conceptualization, Writing—review and editing. VD: Conceptualization, Writing—review and editing. NG: Conceptualization, Writing—review and editing. TY: Conceptualization, Writing—review and editing. XZ: Conceptualization, Writing—review and editing.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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