URBAN ASSEMBLAGE: THE CITY AS ARCHITECTURE, MEDIA, AI AND BIG DATA.

• Paper / Proposal Title:
A new conceptual framework to an AI-based urban assemblage: the “Smart Bubble”

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• Abstract:
Ubiquitous computing and smart cities are becoming progressively a common experience of our urban lives. A set of converging technologies – such as AI, IoT, and Digital Twin – are in fact enabling such shift towards a more relational and mediated fruition of the public space.

However, while the enabling technological backbone, as well as the increasingly digitalized layer of spatial fruition for each urban dweller, is certain, there is a wider degree of uncertainty about the ways such a new relationship between actors and space might be steered for the benefit of the urban dwellers. In fact, while the use of AI has been widely advocated to better mediate between actors’ needs and the urban space, it seems that a more robust conceptual framework for better imagining such mediation role of AI is still missing.

Hence, we propose hereby a new conceptual framework which is intended to help us better understand and shape this mediated relationship: the “Smart Bubble”. It is a way to comprehend – in one unique conceptual entity instanced per each actor – the parameters characterizing each actor and the space(s) (s)he relates with. It then allows
to better support an AI-based mediation mechanism between actors and places, but also among actors relating to the same space.

Such a new framework is being researched at Politecnico di Milano within a multidisciplinary project aiming at realizing a proof-of-concept use case to illustrate the potential impact of AI, 5G and IoT on shared spaces within the campus. In particular, the main envisaged impact would consist of a deeply personalized relational space, hence different for each actor, even if insisting on the same physical portion of space.

• Author(s) Biography:

Lorenzo Ceccon: After training and working as a lawyer for years, I then followed my passion and interests and graduated in architecture, then pursuing a PhD research path in urban planning. Within this framework, I had the chance to study and work in my home country Italy and abroad, and to be an alumnus of different Universities, including Università degli Studi di Milano (IT), Sheffield Hallam University (UK), Sankt Gallen University (CH), Bauhaus Universität Weimar (DE) and Politecnico di Milano (IT) where I have also been teaching in different courses mostly linked to computational design and digital representation of architecture and urban space.

My current main research interests sit at the crossroad between computational design and the field of architecture and urban planning, especially as regards the use of predictive modelling based on digital data – data and knowledge bases – also through AI and agent-based modelling. Focus both on the architectural field, BIM and H-BIM model fitting and predictive features, and urban planning themes, especially Digital Twin and relational space and the impact thereon by converging technologies such as 5G, IoT and AI.

Virginia Vecchi: Graduated in Urban Planning and Policy Design at the Politecnico di Milano in 2019, I am currently a research fellow at the DAS1U for the BASE-5G University project with the research “5G Enabled Smart Public Spaces”. The project looks at the collective use of public spaces in some pilot areas, such as the Bonardi Campus of the Politecnico di Milano, to build computational models of the use of the space conveyed by smart direction tools and apps based on 5G technology, A.I. and IoT. My academic and professional experience combines urban research, didactic collaboration, and publishing activities. I collaborated with the ITER STUDIO - URBAN DESIGN + HOUSING studio with research and participation activities in projects and international competitions from the architectural to the territorial scale. I collaborate as a teaching assistant in the courses of “Urban Planning and Representation” and “Master Plan Studio” at the Politecnico di Milano in both Bachelor’ and MSc’ planning courses. I furthermore collaborate with the editorial staff of Planum, the Journal of Urbanism, with activities of selection and editing of scientific materials for publications.