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

• Paper / Proposal Title:
Building Typology Classification for Renovation Strategies.
Statistical Morphotype Recognition through Quantitative Analysis of School Buildings Heritage in Turin (Italy).

• Author(s) Name:
Caterina Barioglio
Daniele Campobenedetto
Elena Guidetti
Ilaria Tonti

• University or Company Affiliation:
Politecnico di Torino - Italy

• Abstract (300 words):
Understanding of urban legacies is changing based on the spaces and digital representations generated by big data. Building typology has been considered as a theoretical frame to investigate architectural heritage and the unregulated urban form. This research focuses on typological classification as a design tool to address renovation strategies on a wide scale. Particularly, typologies recognition is meant to provide suggestions for transformations and priority of action on an extensive estate stock. In this research, typologies are built on a quantitative analysis of a comprehensive series of
cases that are generalized into building “types”. A test case is provided by the school building stock in the City of Turin, comprehending all the 475 school institutions.

Typologies recognition is based on a comparison and integration between the historical-legislative classification with spatial and quantitative analysis of the school building stock. The method follows a phenomenological approach within the Geographical Information System (GIS), led by an integrated analysis of the dimensional features and 3D satellite images of each particular building. Through data analysis, it is possible to build a statistical correlation between recurrent morphotypes and possible actions on school buildings.

The classification is therefore the basis for the assessment of the statistical significance of the spatial features for which renovation strategies are proposed.

This method allows decision-makers to identify priorities of action on wide building stock and designers to face renovation projects starting from a set of critical issues and potentialities peculiar to the morphotype.

• Author(s) Biography (200 words each):

Daniele Campobenedetto is an architect and an Assistant Professor in Architectural and Urban Design at the Department of Architecture and Design of Politecnico di Torino. His research activities investigate especially urban transformation and urban design in European cities, focusing on architectural typologies and urban rules. He is Research Fellow of the interdisciplinary research center “Future Urban Legacy Lab”. He is also Journal Manager, Editor and co-funder of the journal “Architectural Design Theory”.

Caterina Barioglio is Assistant Professor at the Department of Architecture and Design of Politecnico di Torino. She earned a Ph.D. in History of Architecture and Urban Design in 2016 with a dissertation carried out between Turin and Columbia University in New York City. Bridging history and design, her research relates to urban regeneration processes and urban design, with a main focus on building typologies and the effects of urban rules on the city form. From 2016 to 2018 she worked for the new masterplan project of the Politecnico di Torino. Since 2018 she has been a research fellow at the interdepartmental center FULL - Future Urban Legacy Lab. She is an Editor of Ardeth - Architectural Design Theory Journal.

Elena Guidetti is an architect a PhD candidate in Architecture, History and Project at Politecnico di Torino. She is a PhD fellow at the Future Urban Legacy Lab of the Politecnico di Torino. Her research focuses on defining, decoding, and assessing the concept of ‘transformative potential’ in the existing buildings through a post-functional perspective.

Ilaria Tonti is an architect and PhD candidate in Architecture, History and Project at the Department of Architecture and Design (DAD) of Politecnico di Torino, where she
graduated in 2018. She is a PhD fellow at two Interdepartmental Centre FULL (Future Urban Legacy Lab) and PIC4SeR (Polito Interdepartmental Centre for Service Robotics). Her research focuses on defining and exploring the interaction between geomatic tools as urban design tools for post-emergencies contexts with a multiscale and multitemporal approach, assisted by Geographical Information Systems (GIS).