



ADAPTIVE ENVIRONMENTS SYMPOSIUM 2021 PERPETUALLY ADAPTIVE ENVIRONMENTS

9-10 September 2021
on site at Politecnico di Milano and online

ORGANISERS

Members of Adaptive Environments network (<http://adaptive-environments.eu/about/>):
Henriette Bier, TU Delft; Margherita Pillan, Politecnico di Milano; Michael Hensel, TU Wien;
Keith Evan Green, Cornell

THEMES

Human and non-human agency
Artificial Intelligence (AI) and robotics in the built environment
Environmental informatics

ABSTRACT

Perpetually adaptive environments define a new research frontier at the interface of architecture and design, computing, robotics, and behavioral sciences. Such adaptive environments are responding in real-time to human needs and opportunities, environmental changes, and other internal and external input. Their design as bio-cyber-physical systems requires integration of physical and virtual architectures with digital systems and social organizations.

Previous research in the emerging research domain of adaptive environments has investigated Actuated and Performative Architecture: Emerging Forms of Human-Machine Interaction (Pillan et al., 2020), Apparatisation in & of Architecture (Lee and Bier, 2019), Robotic Building (Bier, 2018; 2017), and Architectural Robotics (Green, 2016).

This Adaptive Environments symposium turns to questions of (1) artificial intelligence and robotics embedded in the built environment; (2) perceptions of human and non-human agency in such environments; and (3) environmental informatics.

Of particular interest to the symposium include but are not limited to topics such as:

1. Interdisciplinary approaches for computational, multi-domain and trans-scalar modelling that integrate planning and design scales from the territorial scale to the building scale.
2. Case studies for urban and natural environments requiring, on the one hand, computational modelling and high precision monitoring strategies and on the other hand robotics for the production and operation of such environments. In this context, sensor-actuators are introduced to facilitate communication and exchange between artificial and natural agents by creating bio-cyber-physical feedback loops.
3. Speculative investigations into how Artificial Intelligence (AI) and robotics bring built environments “to life”.

Authors of accepted papers will be encouraged to develop their papers as chapters for a volume in the Spring Book Series, Adaptive Environments (<https://link.springer.com/bookseries/15693>) edited by the symposium organizers.

PROGRAM

Activities and presentations will be blended combining online and off-line means. Presentations are scheduled to take place 20 minutes followed by 10 minutes Q&A.

PRESENTATIONS

9th Sept. 2021

Join Zoom Meeting

<https://us02web.zoom.us/j/86856582641?pwd=ei8vbWhQbzVEVWWhaSERQnzI3N3RJQT09>

Meeting ID: 868 5658 2641

Passcode: 895749

- 14:00-14:10h Intro and moderation (Henriette Bier, Margherita Pillan and Michael Hensel)
14:10-14:40h Jeroen van Ameijde (CUHK): Data-driven Urban Design
14:40-15:10h Katia Perini (UniGe) and Ata Chockhachian (TUM): Informed Urban Environments
15:10-15:40h Umberto Fugiglando (MIT): The City that Senses and Responds: How Data Can Drive Interdisciplinary Connections to Foster Ecological Solutions
15:40-16:10h Coffee break
16:10-16:30h Sebastian Vehlken (Leuphana University): Dual Environmentalty. Towards a Media Ecology of Oceanic Habitats
16:30-17:00h Verena Vogler (Bauhaus University, Weimar; McNeel): Designing Artificial Coral Reefs
17:00-17:30h Pierre Oskam and Henriette Bier (TUD): Bio-cyber-physical Planetoids
17:30-18:00h Erica Parisi (UniFi) and Jakub Tyc (TU Wien): Data acquisition & Data integration: The Case of High-altitude Viticulture in Lamole

10th Sept. 2021

Join Zoom Meeting

<https://us02web.zoom.us/j/89956384698?pwd=Wm9HcUtyeWpLZHpbObGRqY1g0MFRMZz09>

Meeting ID: 899 5638 4698

Passcode: 125708

- 14:00-14:10h Intro and moderation (Henriette Bier, Margherita Pillan and Keith Green)
14:10-14:40h Cédric Pruski (LIST) and Defne Sunguroglu Hensel (TUM): Data & Information Modelling
14:40-15:10h Georg Vrachliotis (TUD): Re-thinking “The Responsive House”, 1972
15:10-15:40h Margherita Pillan and Andrea Bonarini (Polimi): Inquiring the impact of AI on the design of responsive and interactive spaces
15:40-16:10h Coffee break
16:10-16:40h Hamed Alavi (UniFri): Indoor Air Quality Forecast in Shared Spaces- Predictive Models and Adaptive Design Proposals
16:40-17:10h Ni Zhang (Cornell): SORTing Things Out: A Multi-Agent, Wall Climbing Organizer-and-Delivery System for Living Spaces
17:10-17:30h Closing of symposium
17:30-18:30h Restricted meeting of AE network