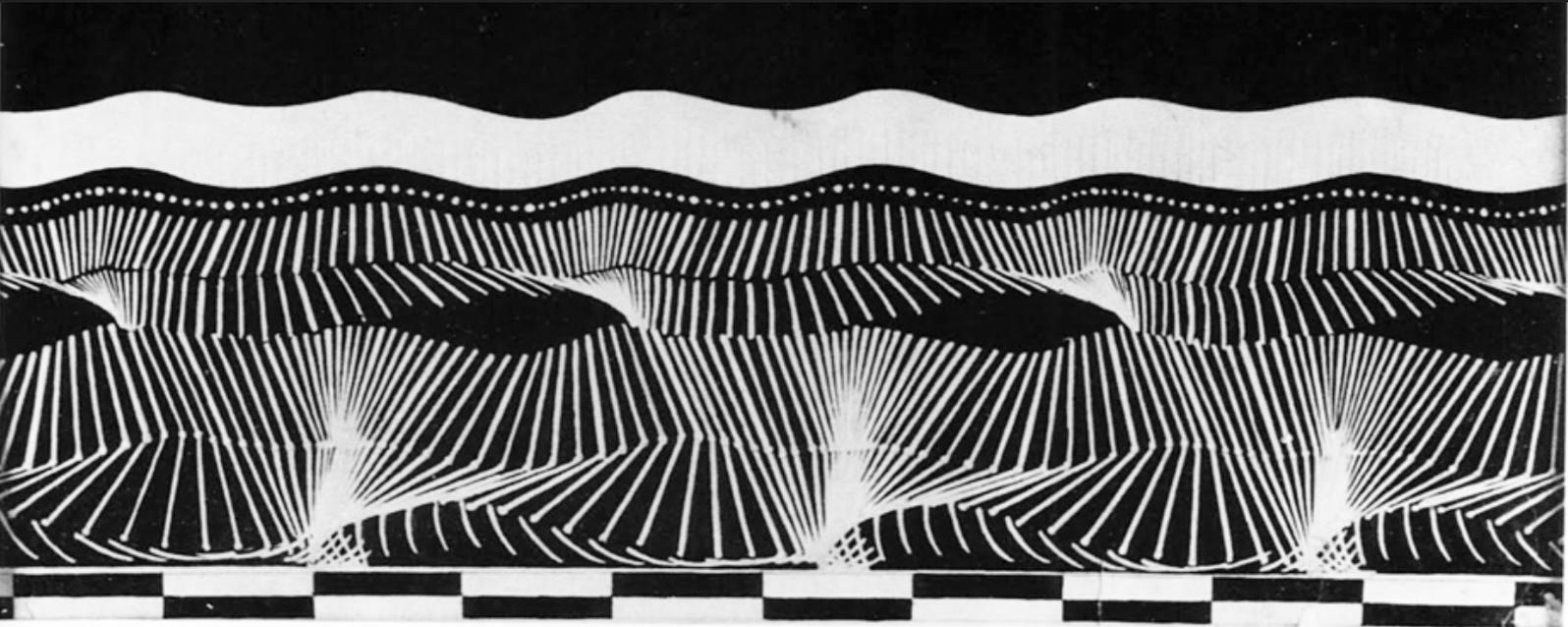


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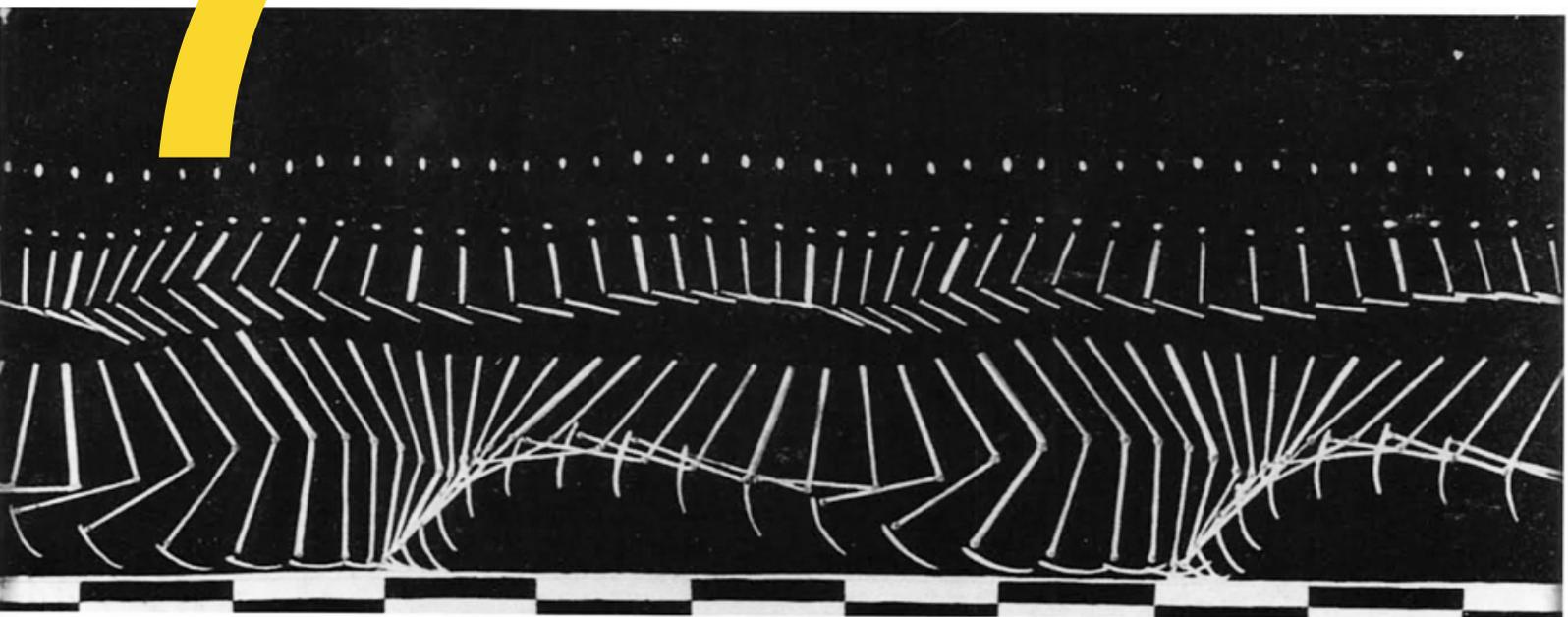
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TRANSFORMABLE ARCHITECTURE



Transformable Architecture

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It is with great pleasure that we present to you the 7th issue of the **archiDOCT** e-journal, a celebratory issue marking its 3rd year of publication. We are honored to be the guest editors and we would like to express our deepest gratitude to Maria Voyatzaki, archiDOCT's Editor-in-Chief, for entrusting us with this endeavor. Moreover, we would like to thank the members of the Scientific Committee for their fruitful reviews, as well as the participating PhD students for their impeccable collaboration. Furthermore, we are thankful to **Kas Oosterhuis** and **Ilona Lénárd** for providing us with a most thought-provoking, 'nonstandard' Good Practice Example that features their best design works and presents, at the same time, a chronology of the intricate fusion between art and architecture on a digital platform.

The current issue presents papers that explore the field of **Transformable Architecture**. The issue wishes to engage the readers with the definitions and perceptions of 'transformability' through different lenses of the contemporary contemplation on architecture and stimulate whilst sharing the need for creating a human-centered dynamic environment. 'Kinetic', 'portable', 'flexible', 'adaptable' and 'mobile', are all keywords that enhance the 'transformability' spectrum and help create a richer outcome. The scope of the issue is to highlight doctoral research work that deals with the design and implementation of spatial kinetic systems and configurations, brings forward the parametric relationship between space, time and human activity, addresses the challenges in developing real-time animated buildings that respond to environmental changes as well as to diversifying human needs and wishes, and strengthens the connections between design innovation, nature, science and art.

The first doctoral essay to feature in this issue is by **Alexander Liu Cheng**, a PhD student at the TU Delft, who explores the research dimensions of embedding high-resolution intelligence into the built-environment. The direction he is pointing at is one that has been prophesized for some time now; the dawn of accessible, open-ended micro-controllers that allow the built up of interactive systems and, of course, interactive spaces. The notion of a high-resolution architecture is pointing toward the visible future of highly-adaptable, customizable and personalized environments. The author argues that the technologies of today facilitate the emergence of a deeper connection between user and space, noting also the liabilities presented by over-communication –the problem of annoying and invasive responses. He is an advocate of a technology-permeated built environment, arguing that the design tools will affect the fabrication tools, and both of them will affect the tools for the operation of the high-resolution space.

Carlos Aguiar's research work at Cornell University gravitates toward a responsive, cyber-physical architecture that will act, or better EnAct, as a social activator of informal gathering spaces in the city. One crucial topic in the discourse of adaptable intelligent environments is the ability to affect urban areas, and especially, to raise their significance upon the level it was in the pre-digital era, when social activities were location-dependent. The author refers to this issue by following the direction of distributed embedded technology that is able to create a matrix of transparent interactivity. He further elaborates on the social and cultural aspects that affect the specifications of such an approach. His theoretical basis fortifies the notion of a distributed system approach, with people being drawn easier within an urban interactive setting as actors, in comparison to more thematic and high-profile approaches. Based on his research, he describes EnAct, a system that tries to address the specifications set in order to achieve a higher level of participation from the people.

Olga Bannova from the Chalmers University of Technology argues for a transdisciplinary integrated methodology of design and construction in Polar Regions characterized with extreme environmental conditions. The author pays particular attention to emerging technologies, materials and the optimization of proven techniques in order to find more economical and adaptable design solutions, while providing functional comfort for habitability and productivity. The paper argues that integrating an architectural approach into construction planning in Polar Regions is critical for enabling sustainability and resilient, as well as flexible, strategies. The paper concludes with planning considerations regarding human factors and environmental related requirements, as well as general and specific design considerations.

Nils Jäger, a PhD student at the University of Nottingham, studies the notion of enaction in the area of adaptive architecture. Interactivity, responsiveness and adaptability in architecture imply that there are mutual influences between inhabitants and their environment, leading to dynamic systems of autonomous and group behaviors. The author investigates the context in which these influences take place and the parameters that such a design approach should include in order to address the prevailing dynamics and the relationships at play, and, furthermore, facilitate the creation of beneficial environments, both physiologically and psychologically. The paper argues that such a context is provided through the notion of Enaction, which is a form of embodiment that emphasizes the interactive nature of making sense of the world. The author strongly believes that such a framework can help architects create more user-friendly environments, getting rid of the possible overbearing sense of 'ever-present' monitoring and responding by 'over-eager' systems.

Our fifth selected paper was submitted by **Vladimir Andjelkovic** from the University of Belgrade, who researches the physical transformation of objects, which relates to a spatially mechanical movement of basic constructive elements. In particular, he investigates four main transformation principles in the architectural design of a contemporary house, emphasizing on the importance of applying those principles in the development of an architectural design methodology for residential buildings to better facilitate the 'unfamiliar user'. The transformation principles represent the physical and perceptive transformation of the structure's interior layout and exterior membrane, which is achieved through opening and closing, expanding and contracting, joining and division, and pulling in and drawing out of elements. Moreover, the paper offers an interesting visual analysis of case studies along with their determining transformation principles.