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Venturing into the Age of AI: Insights and Perspectives

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EDITORIAL

Venturing into the Age of AI: Insights and Perspectives

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In recent times, the term "intelligence" has gained considerable popularity, permeating numerous spheres encompassing actions, practices, processes, and products. This pervasive presence within contemporary discourse can be attributed to two pivotal factors. Primarily, there has been a paradigmatic shift in our comprehension of intelligence, transcending the notion of it being exclusively confined to humans, but rather acknowledging its manifestation in diverse emerging properties and conditions present in both human and non-human entities. Secondly, intelligence is now perceived as a multifaceted nexus, interlinking a 'brain' (whether human or non-human), a corporeal form, and the complex environmental contexts in which this embodiment exists.

Within architectural circles, there is an ongoing exploration of various "intelligent" tools, encompassing diverse AI languages, generative adversarial networks, and text-to-image tools. These endeavours seek to comprehend how non-human intelligence can be harnessed to address contemporary urban challenges and concerns. Simultaneously, careful consideration is being given to the potential benefits and risks that arise from the utilization of such tools in urban centers and cities. The field of architecture is undergoing rapid transformation due to the incorporation of cutting-edge digital technologies, particularly the integration of artificial intelligence (AI) into various aspects of design, representation, and production. Considering the already substantial impact of AI in fields such as engineering, social sciences, and political sciences, it becomes imperative for architecture to adopt a critical approach to understanding and evaluating the implications of these transformative technologies within its domain. By doing so, architecture can effectively navigate and harness the potential benefits while addressing any challenges that may arise from the integration of AI in its practices.

The application of Artificial Intelligence (AI) techniques has witnessed widespread use in the realm of architecture, particularly within design-related domains. The emergence of AI-based design methods has led to a growing trend among researchers and architects, who are now actively engaged in training machine learning models or leveraging pre-trained models to augment the architectural design process. This integration of AI technology encompasses a wide array of functionalities, ranging from generating design renderings based on images to optimizing design solutions through vector-based approaches. By leveraging AI, the early-stage design inspiration phase is enriched with heightened creativity, while the efficiency of the overall design process is significantly enhanced. The fusion of AI with architectural practices thus paves the way for innovative and streamlined design solutions, fostering a promising outlook for the future of architecture.

In his seminal work, the Tractatus Logico-Philosophicus (1922), Ludwig Wittgenstein put forth the notion that the boundaries of one's language mark the boundaries of one's understanding of the world. This perspective suggests that if we lack the linguistic capacity to articulate something, then it is deemed nonexistent or incomprehensible. However, in the contemporary landscape, Wittgenstein's statement acquires a new dimension as we witness the emergence of natural language text-to-image applications driven by artificial intelligence algorithms. This development prompts profound reflections on the concept of a post-digital sensibility in architecture. The exploration of a post-digital sensibility in architecture involves investigating how natural language-based AI applications can transcend traditional boundaries, and through theoretical and practical approaches, delve into the realms of creativity and intelligence within a post-human design ecology. By utilizing Neural Network processes in design, this discourse seeks to

dispel the perceived 'risks' associated with such technological advancements and unlock new possibilities for architectural expression and exploration. Through the convergence of AI-driven text-to-image tools and architectural practice, this inquiry into a post-digital sensibility envisions a future where the conventional barriers between language, creativity, and design are dismantled. By embracing and demystifying AI's potential, architects can forge innovative paths to shape the built environment in ways previously unimagined.

The invitation for scholarly submissions for this number of FORUM A+P provocatively interrogated the inherent interconnection between architecture and the evolving cultural ethos it reflects in the era of artificial intelligence (AI) and the pervasive influence of intelligence extending into its spheres. Architecture, as a tangible expression of societal mores, is intrinsically linked to the tenets of novelty and the ongoing reassessment of these mores in light of the dynamic currents of societal dilemmas, preferences, and apprehensions. Concurrently, it adjusts to novel dynamics and cross-pollination stemming from interconnected domains and movements. The abstracts submitted explored a wide range of topics where the entanglement between architecture and intelligence is showcased from multiple perspectives and approaches. From the need for architecture to redefine its boundaries reflecting on the importance of intersecting forces from different fields of knowledge to the embrace of such technologies to delve into society-related problems such as education inequality and gender balance issues that could solve – or at least rediscussed – in the light of these new intellectual impulses. The different papers inherently question how we should look at architectural and design research and how we should reposition their coordinates for it to remain relevant and contemporary without closing itself into its consolidated theoretical boundaries. This editorial tries to synthesize the different thoughts encapsulated in this issue and, akin to Plato's two horses, we sought to harmonize divergent perspectives and disparate trajectories, striving to maintain coherence amidst varying viewpoints. The aim beneath this number of FORUM A+P is not just to trace the current research trajectories related to the main topic but also to represent an effort to trace future directions for architectural research in the age of AI. This intention becomes apparent upon reviewing the submitted paper and the vibrant portrait they collectively paint. Furthermore, In light of the positive response to the call for papers and the multitude of discussions and topics initiated, we have opted to publish a greater number of papers than our customary practice.

Andia Vllamasi and *Klea Hallaci*'s work explore the impact of artificial intelligence in medical healthcare and the implications it could have in providing medical professionals with an effective tool for early detection and intervention by determining the algorithm that performs best at disease prediction. Furthermore, it represents an interesting reflection on how prediction tools can be used in analyzing large datasets to improve performance on responsiveness with the emergence of new previously unseen conditions

Sonila Murataj and *Orgejda Doda*'s study deals with the actual condition of our city environments through a thorough perspective. They propose a set of solutions for traffic light optimization by comparing and analyzing the output results of different methods/algorithms (Pedri Net algorithm, fuzzy model, improved RNN Djikstra Algorithm) and discussing the livability of our cities through the proposal of smarter and more efficient and reliable solutions.

Erilda Muka, Dhurata Shehu and Gerti Mecaj's paper confronts the societal topic of Educational Inequalities and gender balance discrepancies in the AI era. They reflect on how intelligent tools could play a pivotal role in mitigating certain educational gaps, its implementation and management could potentially exacerbate pre-existing inequalities.

With a background in fashion design and sustainable materials, *Esmeralda Marku* analyzes the growth of the creative potential of designers in the fashion industry delving into the impact of AI on almost every segment of the fashion value chain. Rooted in a design through a research approach, the paper oscillates between some theoretical reflections on the topic and some concrete explorations from the author coming from her professional and pedagogy practice.

Arber Malaj and *Erilda Muka*'s investigation sheds light not only on the advantages that AI fosters but raises questions also about the difficulties and worries it may generate. The authors discuss about algorithmic bias and the lack of transparency in sophisticated AI algorithms, ethical considerations are crucial. Another worry is job displacement since the possibility of automation raises concerns about the nature of labor in the future.

Tamara Luarasi and *Albina Tocilla*'s text offers another perspective on the optimization of our urban environments and intersections through the lens of traffic light optimization. Differently from the previous one, this work implements VANET (vehicular ad-hoc network) technology and a preliminary study on its implementation and results.

Luca Lezzerini and *Andia Vllamasi*'s express a main concern related to risks related to the diffusion of AI technologies. Through a recall from sci-fi literature and dystopias they delve into the basic concepts of risk and tailor them to provide effective support in developing risk analysis for the specific area of artificial intelligence. They assume that when risks are defined then methods to detect and minimize them are provided.

Fulvio Papadhoulli's research examinates the intersection of speculative architectural-design methodologies and the era of artificial intelligence (AI). It explores how AI technologies are reshaping and augmenting the speculative design process within architecture, offering insights into the evolving role of human creativity and machine intelligence in shaping future-built environments through time and space.

Remijon Pronja and *Armela Lamaj* approach the topic of spirit and form in Tirana's contemporary urban development. Strongly rooted in the intersection between art and (urban) design. The paper investigates the potential for architectural forms to reflect the evolution of urban landscapes in the contemporary context and potentially evoke nationalist sentiments through their design.

The backdrop of our discourse on this issue is the profound changes that the design practice has been facing in less than five years due to the growth of AI technologies and tools in everyday practice and have also posed existential questions about the role of research and their current and future trajectories. This number of FORUM A+P aims to be a mosaic of ideas and exploration and advocates the need for deep reflections concerning the relevance of our research in the context of fast-changing values in the transitional era we are living in.