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Editorial

# Designing Realities in an Age of Intelligent Systems

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The launch of a new scholarly journal is often viewed as the start of a publishing venture, more fundamentally, it marks the beginning of a conversation, a collective effort to identify emerging questions, challenge conventional thinking, and shape the future direction of knowledge. It is therefore with great excitement and a deep sense of responsibility that I welcome readers to the inaugural issue of *TechDesign*.

The establishment of this journal comes at a crucial point in human history. Around us, artificial intelligence is transforming knowledge work, creativity, and decision-making, for example, digital twins are revolutionising how we understand and manage complex systems, and virtual and augmented reality are blurring the boundaries between physical and digital worlds. Furthermore, human-computer interaction is becoming increasingly intelligent, adaptable, and immersive, while digital media platforms continue to transform communication, culture, and identity across the globe. With rapid technological progress, the greatest challenge of our time is not technology itself, it is design. It is our capacity to design the relationships between technology, people, society, and the realities we live in. For much of modern history, design has been understood primarily as the creation of objects, where designers developed products, buildings, graphics, and artefacts that enhanced human life and supported economic growth. Later, with the advent of digital technologies, design extended beyond physical forms to include interfaces, interactions, and user experiences.

We are now on the threshold of a far more profound transformation, entering what might be called the Fourth Design Revolution. As we know, the first design revolution focused on physical artefacts, which led to industrial design and transformed manufacturing economies. The second design revolution centred on digital interfaces, shaping the emergence of personal computing, the internet, and mobile technologies. The third design revolution highlighted experiences in which human-centred design, service design, and experience design shifted the focus to emotions, behaviours, and the quality of human interactions. The fourth design revolution is fundamentally different, it is not about designing products, nor about designing experiences, it is about designing realities.

A few months ago, I found myself reflecting on a scene that has become increasingly common. On the campus of Nanyang Technological University, a student sat in front of a laptop, working on an assignment assisted by generative artificial intelligence. At the time, algorithm-curated recommendations guided the articles read, videos watched, and ideas explored. Notifications appeared on multiple screens, conversations flowed between physical and virtual spaces, digital platforms facilitated social interaction, and cloud-based systems connected people, information, and services across continents. Nothing about the scene seemed extraordinary, but upon closer look, something remarkable was taking place. The student was not merely using technology, they were becoming part of a reality ever more shaped by technology. This difference might seem subtle, but I believe it captures one of the most important challenges of our time.

For the first time in human history, we have technologies capable of actively constructing the environments through which people perceive, communicate, learn, create, collaborate, and make decisions. These technologies are no longer separate from human experience, it is becoming part of the very architecture of experience itself. We have shifted from designing tools to designing environments, and perhaps even more deeply, from designing environments to designing realities. Therefore, the central question is no longer whether technologies can perform tasks more intelligently, it should be what kinds of realities these technologies help to create and whether those realities contribute to human flourishing:

- How can we design realities that build trust instead of manipulation?
- How can we design systems that strengthen human agency instead of reducing it?
- How can we develop immersive environments that enhance human understanding instead of isolating people from one another?
- How can we ensure that artificial intelligence enhances creativity instead of making it uniform?
- How can we create digital futures that are inclusive, ethical, sustainable, and deeply human?

These questions require new forms of inquiry that transcend traditional disciplinary boundaries and converge technological innovation, design imagination, and communicative understanding. Importantly, we believe that the future demands a transition from human-centred design toward what might be termed reality-centred design.

Reality-centred design calls for intellectual courage, ethical reflection, and scholarly leadership. In the domain of digital technologies, we are seeing a transition from systems that respond to human actions to those that increasingly anticipate, recommend, generate, and adapt. This includes how artificial intelligence is transforming knowledge creation, distribution, and application, how human-computer interaction is moving from command-and-control interfaces towards intelligent, context-aware, and increasingly conversational experiences, and how digital twins are redefining ways to model, monitor, and manage physical environments, from manufacturing systems and healthcare infrastructures to smart cities and sustainable ecosystems. Meanwhile, virtual, augmented, and mixed realities are transforming ideas of presence, identity, and participation by creating immersive spaces where the boundaries between the physical and digital become more fluid. As intelligent systems become integrated into everyday life, scholars must therefore address issues of transparency, trust, ethics, explainability, inclusivity, sustainability, and human agency.

The same transformation is evident in the field of innovative design. Traditionally associated with the creation of products, services, and visual artefacts, design has developed into a strategic discipline capable of shaping behaviours, experiences, and systems. User experience design, interaction design, product design,

industrial design, digital design, and visual design now work within increasingly interconnected socio-technical environments. Designers are no longer creating static objects, they are shaping adaptable systems, coordinating human-machine interactions, and influencing the conditions under which people learn, work, communicate, and create. This shift calls for a re-examination of the core purpose of design. Future design scholarship must go beyond usability and functionality to consider broader issues of responsibility and impact, and design inquiry must push us to broaden design from creating experiences to managing realities.

Communication, too, holds a crucial role within this emerging landscape. In a world flooded with information, communication is no longer just about transmitting messages but increasingly about shaping understanding, meaning, and collective action. Visual communication influences how complex information is interpreted, while branding goes beyond market differentiation to become a tool for building trust, authenticity, and identity. Digital media platforms enable public discourse, cultural engagement, and social relationships on a global scale. The future of communication scholarship lies in understanding how narratives, symbols, interfaces, and media ecosystems shape perceptions of reality. As generative AI produces content at an unprecedented scale and speed, new questions arise about credibility, authenticity, persuasion, and public trust. Immersive technologies introduce new forms of engagement and communication, requiring scholars to investigate how meaning is constructed across physical and virtual environments. The challenge is to communicate responsibly in increasingly complex and interconnected realities.

Taken together, these developments suggest that the future of innovation will be defined by how effectively these domains converge to address humanity's most pressing challenges. The next generation of scholarship must therefore be interdisciplinary out of necessity rather than choice, to connect technical innovation with human values, design creativity with societal impact, and communication practices with ethical responsibilities.

This is the intellectual space that *TechDesign* aims to cultivate. We envision the journal as a platform for rigorous, future-oriented scholarship that explains emerging phenomena and shapes the future directions of digital technologies, innovative design, and communication. We seek contributions that challenge assumptions, propose new frameworks, develop transformative solutions, and deepen our understanding of how intelligent systems, innovative design, and communication practices are collectively shaping the realities of the twenty-first century. The Fourth Design Revolution is already beginning, and as we embark on this journey, I invite scholars, practitioners, designers, engineers, communicators, and innovators from around the world to join us in exploring this emerging frontier.

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