



Human-Centered Intelligence and Cross-Disciplinary Design Innovation

This issue of Big.D explores the rapidly expanding intersection of artificial intelligence, human-centered design, healthcare technologies, intelligent systems, and cross-disciplinary innovation. Across diverse application domains, the contributions demonstrate how design can mediate between increasingly sophisticated technologies and the physiological, cognitive, behavioral, and societal requirements of their users.

Healthcare and human well-being constitute an important focus. Research on interpretable machine learning for sleep detection, AI-enabled healthcare and user-experience optimization, ultrasound brain stimulation, skin-conductance sensing, and mental-health support illustrates a transition from purely conceptual approaches toward systems in which sensing, computation, therapeutic technologies, and human-centered considerations are increasingly integrated. These studies reflect the importance of interpretability, usability, measurement, and technical validation in emerging healthcare engineering.

The issue also extends intelligent design into the built environment and interactive systems. Cognition-driven urban navigation demonstrates how models of human pathfinding may inform smart-city technologies, while work on flexible electronics and interactive installations shows how fabrication technologies can enable new forms of responsive physical – digital interaction.

Several contributions examine AI and design innovation within organizational, behavioral, and social contexts. Rather than treating these perspectives as separate from technological development, they highlight the wider systems within which intelligent technologies are adopted, evaluated, and governed.

Collectively, the papers demonstrate the value of connecting computational intelligence with human-centered inquiry and technical implementation. They also reinforce the evolving mission of Big.D as an international platform for design-enabled engineering: research in which engineering design, artificial intelligence, sensing technologies, biomedical innovation, and interdisciplinary knowledge converge to address complex human and societal challenges.