Interacting with Diverse Realities

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The theme articles in this issue highlight the breadth of computer graphics and visualization research, development, and applications that make up our research field. They range from making sense of abstract data representing physiological processes to understanding and controlling real-world tasks as executed by artificially real creatures—robots. This spectrum of research work and their applications demonstrate the diversity of research challenges that need to be solved; the variety of different expert domains that need to be entered, understood, and collaborated with; and the complexity of the systems involved in the evaluation and value creation process.

It is no surprise that the common theme throughout the special issue articles is the importance of robust interaction technologies and techniques as well as the tight coupling of user input and visual representation. We aren’t simply talking about improving the control over the synthetic reality on the other end—whether it be visual representation or physical actuation. The goal is to improve the analytic process by allowing for more rapid, precise, and possibly more intuitive application of analytic tasks. Equally important is the inclusion of subject-matter experts in the research and development process who provide essential input, critique, and application-specific scenarios that are the foundation for creating commercially viable systems. In return, such exchanges help unearth new research challenges so our community can continuously evolve. Because those experts are driven by the need for quality decision making rather than just curiosity (and possibly tenure requirements), they also provide a unique perspective on the value of trade-offs between quality and aesthetics, robustness and flexibility, or scientific rigor and application need.

Maybe the special issue articles published here will inspire you to identify your own sweet spot with respect to the represented gamut of work in interactive computer graphics and visualization as well as help develop an appreciation for all the aspects of research and application involved.

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