Human Touch in Digital Experiences

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This issue showcases a selection of feature articles that all have in common a strong emphasis on using computing environments to improve the human experience. A key element in these works is adding touch to visual representations, which has long been established as necessary for improving human-computer interaction. Multisensory feedback in particular is a crucial component toward achieving true immersion, from allowing users to engage in a phenomenon known as the “suspension of disbelief” in virtual reality applications to simply improving task effectiveness in telepresence applications. CG&A has a history of publishing articles that discuss the required tight coupling of graphical representation and tactile or haptic feedback.

However, rather than focusing only on in-depth issues of haptic displays, the articles in this particular issue provide an interesting crosscut of different embodiments and applications for improving, mimicking, facilitating, or even reducing the need for the human touch in digital experiences.

In “HaptiStylus: A Novel Stylus Capable of Displaying Movement and Rotational Torque Effects,” Atakan Arasan, Cagatay Basdogan, and Tevfik Metin Sezgin describe a novel stylus, HaptiStylus, that conveys certain vibrotactile and inertial haptic effects to the user. Their work extends traditional haptic techniques to popular tablet devices, conveying movement and rotational torque information to users via a natural pen-style interface.

In contrast, the article “Identifying Virtual 3D Geometric Shapes with a Vibrotactile Glove” by Jonatan Martínez, Arturo García, Miguel Oliver, José Pascual Molina, and Pascual González describes a glove-style haptic display that allows users to identify virtual 3D objects in the absence of visual feedback.

“A Tool-Free Calibration Method for Turntable-Based 3D Scanning Systems” by Xufang Pang, Rynson W.H. Lau, Zhan Song, Yangyan Li, and Shengfeng He, on the other hand, describes research aimed at reducing human effort and intervention for the complex and repetitive task of 3D content acquisition.

“RoboJockey: Designing an Entertainment Experience with Robots” by Shigeo Yoshida, Takumi Shirokura, Yuta Sugiura, Daisuke Sakamoto, Tetsuo Ono, Masahiko Inami, and Takeo Igarashi doesn’t settle just for simple touch but employs a multitouch tabletop interface for multuser collaboration. The RoboJockey entertainment system enables users to choreograph human-derived robot dances using a simple visual language.

Finally, in “Upper-Limb Function Assessment Using VBBTs for Stroke Patients,” Sungmin Cho, Won-Seok Kim, Nam-Jong Paik, and Hyunwoo Bang describe their work to design a human-computer interaction experience that utilizes sensing technology to implement a home-based virtual assessment and rehabilitation system, thus focusing on actually restoring human touch.

We hope you share our enthusiasm about the diversity of perspectives on human-touch related scholarly contributions in this issue and the potential that the described technologies, techniques, and applications represent for future research.

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