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HCIP: Human Computer Interaction in Practice

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Research Interests

• Human Computer Interaction
• Behavior Analysis
• Eye Tracking
• Virtual Reality
• 3D Spherical Display
HCIP Special Track :: Summary

HCI (Human-Computer Interaction) technology is designed to respond to various human movement patterns and to enable humans to work at their most efficient. Three-Dimensional (3D) analysis of human behavior in HCI not only allows us to see the characteristics of each behavior from various angles, but also to display the patterns in a virtual environment, which can be used for appropriate behavior support systems. In this special track, three practical studies in human-computer interaction were introduced, including an assessment of drug picking activity using RGB-D camera, the development of a Virtual Reality (VR) simulator for speed sprayers, and a flexible 3D pointing device with haptic feedback. These studies involved the development of systems with multiple sensors and discussed the measurement data obtained from the systems.
HCIP Special Track :: Topics of Interests

- Body motion analysis
- Behavior analysis
- Interactive human computer interaction
- Tactile sensors and application
- 3D VR simulation
- Special applications (healthcare, assistive-robotics, special interfaces, etc.)
### Summary of Contributions 1/3

**Title**  
Toward the Development of a VR Simulator for Speed Sprayers

**Authors**  
Yu Tanaka, Oky Dicky Ardiansyah Prima, Kanayo Ogura, Koichi Matsuda, and Shoichi Yuki

- This paper proposed a speed spray simulator that allows users to experience driving and operating a car in a virtual environment. Data from the operators driving the actual speed sprayer was also collected so that the same behavioral data could be reproduced in the virtual environment.

- The simulator enables us to collect a time series of information on the driver's head pose, hand gestures, and gas pedal and brake controls measured by the simulator, and to visualize the characteristics of the driver's behavior during driving.
Summary of Contributions 2/3

Title: Assessment of Drug Picking Activity using RGB-D Camera
Authors: Yuta Ono and Oky Dicky Ardiansyah Prima

• This paper proposed a framework to determine the medication picking behavior using Azure Kinect.

• Compared to the barcode medication management and the automated dispensing system, the proposed framework is easy to use and does not require capital investment or high cost to install LEDs or AR markers on the dispensing shelf. Experimental results show that the proposed framework can accurately determine the picking process by hand tracking.
Summary of Contributions 3/3

Title
Development of a Flexible 3D Pointing Device with Haptic Feedback

Authors
Koma Yoshikawa, Yuta Ono, and Oky Dicky Ardiansyah Prima

• This paper proposed and evaluated a stylus-type 3D pointing device with a flexible mechanism and vibration actuators for intuitive input.
• The experiments showed that haptics had a significant effect on 3D pointing, enabling more accurate input manipulation. However, the flexible mechanism did not have a significant effect on adjusting the input to match the depth.
Conclusion & Future Perspective

• The special track, "HCIP: Human Computer Interaction in Practice," provided a forum to discuss research themes related to human-computer interaction to enable humans to work most efficiently with various movement patterns, as well as issues and solutions related to each theme.

• At the upcoming HCIP, we are looking for case studies using motion capture and will discuss a wide range of topics related to the analysis and application of human behavior using digital humans.