ACHI 2023, The 16th International Conference on Advances in Computer-Human Interactions

AHCI: Applications of Human-Computer Interaction

Oky Dicky Ardiansyah Prima

ACHI2023 | April 2023

prima@iwate-pu.ac.jp

IARIA

Contact

Prof. Dr. Oky Dicky Ardiansyah Prima

Iwate Prefectural University, Department of
Software and Information Science, Japan.
prima@iwate-pu.ac.jp

Research Interests

- Human Computer Interaction
- Behavior Analysis
- Eye Tracking
- Virtual Reality
- 3D Spherical Display

HCIP Special Track :: Summary

Human-Computer Interaction (HCI) was originally a field of study that focused on the design and use of computer technology and the interface between users and computers. Since then, the field has evolved to focus not only on human-computer interaction, but also on methods for using computers to achieve new goals. This special track introduces research cases based on psychological approaches to physical and electronic information sharing tools and tools to enhance self-affirmation. Computer vision-based applications will then be presented, including a simple method for generating 3D ambiguous objects and a tree-structuring method for pruning apple trees. We believe that the proposed tools and their implementation methods can provide hints for research in HCI and contribute to the development of new interfaces.

岩手県立大学
ソフトウェア情報学部
Faculty of Software and Information Science

Iwate Prefectural University

HCIP Special Track :: Topics of Interests

- Interactive human computer interaction
- Behavior analysis
- 3D simulation
- Special applications (healthcare, assistive-robotics, special interfaces, etc.)
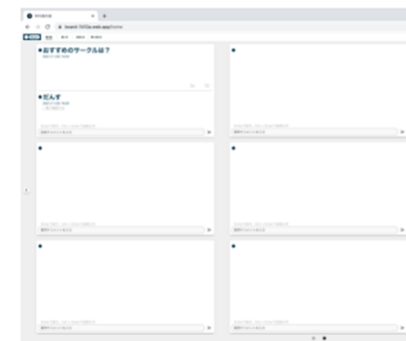
Summary of Contributions 1/4

Title Design of Information Sharing media based on observation of reading and writing behavior on message boards within a large organization

Authors Kanayo Ogura and Ryotaro Hoshi

- This paper observes the usage patterns of physical information bulletin boards by users in order to implement an electronic information bulletin board for information sharing in a large organization. From the observation results, the authors found that categorization of post topics and space for replies to those posts are necessary.

- Four months of experimental operation of the electronic information bulletin board showed that the number of users increased more than that of the physical bulletin board, and active information posting and replying were also observed.

岩手県立大学
ソフトウェア情報学部
Faculty of Software and Information Science

Iwate Prefectural
University
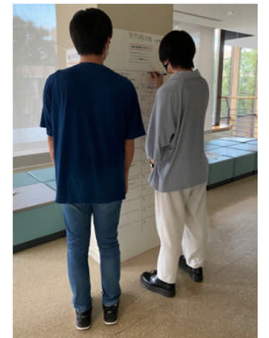
Summary of Contributions 2/4

Title Research on the Improvement in a Feeling of Self-Affirmation Using a Self-Reframing Diary System

Authors Kanayo Ogura and Rie Kimura

- This paper describes the construction of a self-reframing diary system that can be used to facilitate the counseling technique of reframing to enhance self-affirmation.

- Experimental results showed that although self-reframing using the diary system was not effective in improving self-affirmation for all participants, subjects who were originally high in self-affirmation could be expected to further improve their self-affirmation through self-reframing.
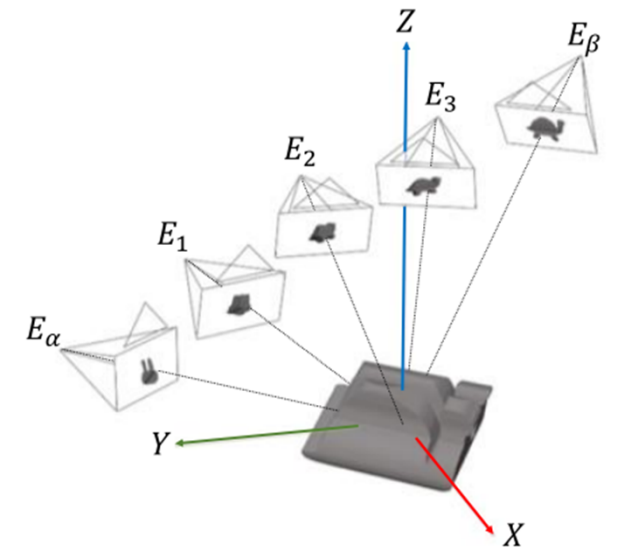
Summary of Contributions 3/4

Title   A Tool for Generating Ambiguous Objects in Two Viewing Directions

Authors   Ken Nakaguchi, Koichi Matsuda, and Oky Dicky Ardiansyah Prima

- This paper proposes a Three-Dimensional (3D) modeling tool to generate an object that can be perceived differently from two different viewing directions. The tool uses solid models of cylindrical surfaces parallel to each of the viewing directions.

- Experiments show that ambiguous objects consisting of simple and complex shapes have been successfully generated.

Summary of Contributions 4/4

Title   Toward an Automated Pruning for Apple Trees Based on Computer Vision Techniques

Authors   Keming Hu and Oky Dicky Ardiansyah Prima

- This paper proposes a simple apple tree recognition method based on computer vision to achieve pruning of apple trees in real environments. The method roughly consists of three steps: segmenting apple trees by semantic segmentation, skeletonizing the apple tree by segmentation image, representing the graph tree by applying breadth-first search.

- 12 semantic segmentation models were evaluated for apple tree segmentation, and the Segfomer model was found to have the highest accuracy.

岩手県立大学
ソフトウェア情報学部
Faculty of Software and Information Science

Iwate Prefectural University

Conclusion & Future Perspectives

The special track "AHCI: Applications of Human-Computer Interaction" featured efforts to improve communication and increase self-affirmation by analyzing the characteristics of behavior patterns. Although the proposed interfaces are not yet completed, these interfaces were found to have certain effects. In the case of information sharing tools, the findings were that it is possible to create better tools by considering the differences between physical and electronic tools. Similarly, in the case of a diary system for logging information, reframing can be expected to enhance self-affirmation. Finally, using computer vision tools to generate 3D ambiguous objects and to structure apple trees, tasks that were previously done manually can be automated by considering geometric elements from images.

岩手県立大学
ソフトウェア情報学部
Faculty of Software and Information Science

Iwate Prefectural
University