

# Virtual Environments 2024

## ICAT - EGVE

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Posters & Demos

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## Table of Contents

### Posters

- egve.20241379 | Advanced Motion Prediction for Virtual Reality Gaming: a CNN-Based Approach  
*Hubert Jegierski, Maciej Jegierski, Adrian Łapczyński, Paweł Babiuch, Mirosław Płaza, Paweł Pięta, Grzegorz Łukawski, Stanisław Deniziak, Jacek Opałka, Artur Jasiński, Magdalena Igras-Cybulska, and Paweł Węgrzyn*
- egve.20241380 | The Effect of Finger-to-Neck Haptic Remapping Considering Spatial Location of Fingers on Sense of Body Ownership  
*Ziyan Zhang, Fumihiko Nakamura, Asako Kimura, and Fumihisa Shibata*
- egve.20241381 | Examining the Effects of Reduced Frame Rate in HMDs on Gaze Behavior  
*Toru Fujiwara, Wataru Hashimoto, Yasuharu Mizutani, and Satoshi Nishiguchi*
- egve.20241382 | Study of the Optimal Reproduction Method for Living Environment Sources Recorded using Ambisonics  
*T. Okada and Masahiro Yamataka*
- egve.20241383 | Evaluation of a Concept of Developing Daily Experience Database Using Virtual Proof-of-Concept Experiment in Shopping Use Case  
*Junji Ohyama, Mai Otsuki, Hideyuki Tanaka, Kentaro Watanabe, S. Meguro, S. Miura, I. Hisanaga, K. Isoda, A. Matsuyama, M. Tanaka, S. Niida, Naoya Tojo, H. Kawanishi, Y. Miura, T. Miyake, and Masaaki Mochimaru*
- egve.20241384 | Embodiment from Virtual Hands-and-feet Movements during walking  
*Shuya Hirose and Michiteru Kitazaki*
- egve.20241385 | Analyzing the Impact of Movement Speed on CyberSickness in Virtual Reality Using Eye-Tracking Data  
*Tenchi Ozaki, Akemi Tera, and Tstutomu Fujinami*
- egve.20241386 | Chameleon Eyes: A Visual Augmentation System to Present Independent Field of View to Both Eyes with Single Gaze Control  
*Yasuyuki Inoue, Yasunobu Katsumata, and Michiteru Kitazaki*
- egve.20241389 | Virtual Reality Space Moderately Filled with Objects for Linear Self-locomotive Speed Perception  
*Yuki Kosuge, Yuta Goto, and Shogo Okamoto*
- egve.20241390 | A Study on the Changes in Attention Awareness Induced by Attention Guidance Methods in Driving Simulators Using Biometric Data  
*Jinwei Liang and Makio Ishihara*

## Table of Contents

egve.20241391	Drone Rider: Wind Stimulation to Enhance Speed Perception of Virtual Flight <i>Hanyi Yang, Kazuya Shimato, Yuta Goto, and Shogo Okamoto</i>
egve.20241392	Mapping of Facial Action Units to Virtual Avatar Blend Shape Movement <i>Tony Wolff, Felix Dollack, Monica Perusquia-Hernandez, Hideaki Uchiyama, and Kiyoshi Kiyokawa</i>
egve.20241393	Reducing the Proteus Effect in Virtual Reality: A Mental and Acting Approach <i>Erika Kimura, Adelaide Genay, Kizashi Nakano, Yutaro Hirao, Monica Perusquia-Hernández, Takuji Narumi, Hideaki Uchiyama, and Kiyoshi Kiyokawa</i>
egve.20241394	An IMU-Based Drone Controller and Its Pilot Evaluation <i>Zhichao Cheng and Makio Ishihara</i>
egve.20241395	VR-Jump: Jump Interface for VR using Only a Head-Mounted Display <i>Yuya Hamaike, Takumi Uemura, and Shuichi Ojima</i>
egve.20241396	Vibratory-interoceptive stimuli to enhance empathy <i>Tatsuya Kitajima, Shogo Okamoto, and Yuki Kosuge</i>
egve.20241397	Surveys and Experiments on the effectiveness of VR-based safety education <i>Ryohei Kitazawa and Rieko Hojo</i>
egve.20241398	Organ Dissection Training System with Elastic String and Flexible Sheets <i>Yoshihisa Wada, Kaori Ito, and Hiroaki Yano</i>
egve.20241399	Development of a Haptic Feedback Interface to Enhance Obstacle Awareness and Reduce Stress of Driver in Shared Spaces <i>Takuma Yabe and Hiroaki Yano</i>
egve.20241400	Study on multiple-virtual body perception: Effects of different spatial presentation and command input methods <i>Masatoshi Serizawa, Yosuke Fukuchi, Vibol Yem, Yasushi Ikei, and Nobuyuki Nishiuchi</i>
egve.20241401	Presenting Climbing/Descending Sensation with Visual image and Horizontal Acceleration <i>Kohei Uematsu and Hiroaki Yano</i>
egve.20241402	Investigating the Effects of Olfactory VR Content on Cognitive Function in Elderly People <i>Ryota Sunami, Takamichi Nakamoto, Nathan Cohen, Takefumi Kobayashi, and Kohsuke Yamamoto</i>

## Table of Contents

### Demos

egve.20241403	Collaborative VR Attraction Enhancing Player Abilities Through Audience Electromyography Signals <i>Kosei Ikeda, Ren Sugie, Sou Imai, Naoki Akiba, Kento Hamasaki, Marie M. Morita, Satoshi Hashiguchi, Fumihisa Shibata, and Asako Kimura</i>
egve.20241404	Demonstration of an Olfactory VR Game to Improve Cognitive Function <i>Ryota Sunami, Takamichi Nakamoto, Nathan Cohen, Takefumi Kobayashi, and Kohsuke Yamamoto</i>
egve.20241405	Enhancing VR Walking Experience Through Dual-Point vibratory stimuli on the Legs <i>Yamaguchi Shuhei and Miyata Kazunori</i>
egve.20241406	Helical Soundscape Reinforcing Azimuth Gain for Redirected Seating <i>Michael Cohen, Alaeddin Nassani, and Rintarō Satō</i>
egve.20241407	A Pressing Sensation Rendering System in a Semi-constrained Finger State <i>Kiyoto Kato and Wataru Wakita</i>
egve.20241408	An Examination of 2-axis Distribution Method for Pseudo 6-axis Motion Rendering with a Rolling Two-Axis Motion Base <i>Syumpei Soeno and Wataru Wakita</i>
egve.20241409	Avatar Walking Control with Sole Load <i>Tomoki Makara and Wataru Wakita</i>
egve.20241410	Exploring the Enhancement of Heartbeat Awareness through Heartbeat Visualization Using VR Technology <i>Takashi Tsuchimochi, Noriaki Kanayama, Kenta Kimura, Masahito Miki, and Masayuki Hara</i>
egve.20241411	Demo of the Extended Wearable Olfactory Display for Multisensory VR Experience <i>Zhe Zou, Dani Prasetyawan, Hsueh-Han Wu, Kelvin Cheng, Sungho Lee, and Takamichi Nakamoto</i>

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## Author Index

- Akiba, Naoki ..... 1403  
Babiuch, Paweł ..... 1379  
Cheng, Kelvin ..... 1411  
Cheng, Zhichao ..... 1394  
Cohen, Michael ..... 1406  
Cohen, Nathan ..... 1402, 1404  
Deniziak, Stanisław ..... 1379  
Dollack, Felix ..... 1392  
Fujinami, Tstutomu ..... 1385  
Fujiwara, Toru ..... 1381  
Fukuchi, Yosuke ..... 1400  
Genay, Adelaide ..... 1393  
Goto, Yuta ..... 1389, 1391  
Hamaike, Yuya ..... 1395  
Hamasaki, Kento ..... 1403  
Hara, Masayuki ..... 1410  
Hashiguchi, Satoshi ..... 1403  
Hashimoto, Wataru ..... 1381  
Hirao, Yutaro ..... 1393  
Hirose, Shuya ..... 1384  
Hisanaga, I. .... 1383  
Hojo, Rieko ..... 1397  
Igras-Cybulska, Magdalena ..... 1379  
Ikeda, Kosei ..... 1403  
Ikei, Yasushi ..... 1400  
Imai, Sou ..... 1403  
Inoue, Yasuyuki ..... 1386  
Ishihara, Makio ..... 1390, 1394  
Isoda, K. .... 1383  
Ito, Kaori ..... 1398  
Jasiński, Artur ..... 1379  
Jegierski, Hubert ..... 1379  
Jegierski, Maciej ..... 1379  
Kanayama, Noriaki ..... 1410  
Kato, Kiyoto ..... 1407  
Katsumata, Yasunobu ..... 1386  
Kawanishi, H. .... 1383  
Kazunori, Miyata ..... 1405  
Kimura, Asako ..... 1380, 1403  
Kimura, Erika ..... 1393  
Kimura, Kenta ..... 1410  
Kitajima, Tatsuya ..... 1396  
Kitazaki, Michiteru ..... 1384, 1386  
Kitazawa, Ryohei ..... 1397  
Kiyokawa, Kiyoshi ..... 1392, 1393  
Kobayashi, Takefumi ..... 1402, 1404  
Kosuge, Yuki ..... 1389, 1396  
Łapczyński, Adrian ..... 1379  
Łukawski, Grzegorz ..... 1379  
Lee, Sungho ..... 1411  
Liang, Jinwei ..... 1390  
Makara, Tomoki ..... 1409  
Matsuyama, A. .... 1383  
Meguro, S. .... 1383  
Miki, Masahito ..... 1410  
Miura, S. .... 1383  
Miura, Y. .... 1383  
Miyake, T. .... 1383  
Mizutani, Yasuharu ..... 1381  
Mochimaru, Masaaki ..... 1383  
Morita, Marie M. .... 1403  
Nakamoto, Takamichi ..... 1402, 1404, 1411  
Nakamura, Fumihiko ..... 1380  
Nakano, Kizashi ..... 1393  
Narumi, Takuji ..... 1393  
Nassani, Alaeddin ..... 1406  
Niida, S. .... 1383  
Nishiguchi, Satoshi ..... 1381  
Nishiuchi, Nobuyuki ..... 1400  
Ohyama, Junji ..... 1383  
Ojima, Shuichi ..... 1395  
Okada, T. .... 1382  
Okamoto, Shogo ..... 1389, 1391, 1396  
Opalka, Jacek ..... 1379  
Otsuki, Mai ..... 1383  
Ozaki, Tenchi ..... 1385  
Perusquía-Hernández, Monica ..... 1392, 1393  
Pięta, Paweł ..... 1379  
Prasetyawan, Dani ..... 1411  
Płaza, Mirosław ..... 1379  
Satō, Rintarō ..... 1406  
Serizawa, Masatoshi ..... 1400  
Shibata, Fumihisa ..... 1380, 1403  
Shimato, Kazuya ..... 1391

## Author Index

Shuhei, Yamaguchi .....	1405	Wakita, Wataru .....	1407, 1408, 1409
Soeno, Syumpei .....	1408	Watanabe, Kentaro .....	1383
Sugie, Ren .....	1403	Wolff, Tony .....	1392
Sunami, Ryota .....	1402, 1404	Wu, Hsueh-Han .....	1411
Tanaka, Hideyuki .....	1383	Węgrzyn, Paweł .....	1379
Tanaka, M. ....	1383	Yabe, Takuma .....	1399
Tera, Akemi .....	1385	Yamamoto, Kohsuke .....	1402, 1404
Tojo, Naoya .....	1383	Yamataka, Masahiro .....	1382
Tsuchimochi, Takashi .....	1410	Yang, Hanyi .....	1391
Uchiyama, Hideaki .....	1392, 1393	Yano, Hiroaki .....	1398, 1399, 1401
Uematsu, Kohei .....	1401	Yem, Vibol .....	1400
Uemura, Takumi .....	1395	Zhang, Ziyang .....	1380
Wada, Yoshihisa .....	1398	Zou, Zhe .....	1411

## Keynote

### **The Impact of Virtual Reality in Psychiatric Treatment: Is VR the Dawn of a New Era in Mental Health?**

*Keiko Ino, National Center of Neurology and Psychiatry*

#### **Abstract**

In recent years, the use of virtual reality (VR) in the treatment of mental disorders has been researched internationally. Cognitive Behavioral Therapy, a treatment for mental disorders, makes use of methods including role-playing anxiety-triggering situations for patients with social phobia, and for those with PTSD, revisiting traumatic memories through visualization and discussion. Efforts are underway to combine these approaches with VR to create more impactful treatments. However, using VR for medical purposes presents various difficulties, and it has not become widespread clinically. This keynote will introduce these efforts and researches, discussing how VR may revolutionize psychiatric treatment and the difficulties it faces.

#### **Short Biography**

Since 2021, Keiko Ino has served as the Section Chief at the National Center of Neurology and Psychiatry's Institute of Mental Health, conducting research on treatments for Post-Traumatic Stress Disorder (PTSD). She specializes in Cognitive Behavioral Therapy, particularly in Prolonged Exposure Therapy for PTSD, and holds a consultancy certification in this treatment method.

## Keynote

### **Narrative Turn in Human Augmentation with Avatars: Connecting Minimal Self Transformations to Narrative Self Development**

*Takuji Narumi, The University of Tokyo*

#### **Abstract**

The experience of embodying avatars with distinct characteristics from one's actual body in virtual reality has been shown to transform self-perception, affecting sensory experiences, behaviors, thinking and capabilities. The speaker has been conducting research on technologies that help individuals achieve their desired cognitive states and abilities by actively utilizing these transformative effects. Through this research, it has become evident that for such technologies to be accepted by users and society, it is crucial not only to develop technologies that augment human capabilities through instantaneous self-transformation but also to create systems that provide meaningful narratives, contextualizing these augmented selves within users' lives. This keynote will emphasize the importance of considering "narrative self," which involves personal identity and continuity across time, in discussions of human augmentation. It will present case studies that explore the relationship between avatar-based self-transformation and narrative self-development, and discuss future directions for research in virtual reality and tele-existence.

#### **Short Biography**

Prof. Dr. Takuji Narumi is an associate professor at the Graduate School of Information Science and Technology, the University of Tokyo. His research interests lie at the intersection of technology and human science, focusing on extending human senses, cognition, capabilities and communication by combining virtual and augmented reality technologies with insights from psychology and cognitive science. He has received numerous awards, including the Young Researcher Award from the Minister of Education, Culture, Sports, Science and Technology, the IPSJ/IEEE Computer Society Young Computer Researcher Award, the SIGCHI Japan Chapter Distinguished Young Researcher Award, and the Excellence Award of the Japan Media Arts Festival.

## Keynote

### **Antenna: Socialization of Co-Design with the Deaf and Hard of Hearing**

*Tatsuya Honda, FUJITSU LIMITED*

#### **Abstract**

Antenna is a wearable device that converts sound intensity into real-time vibrations and light, transmitting features like rhythm and volume. It has been adopted by over 80% of schools for the deaf in Japan, where it is used for rhythm and speech training. In addition to the story of how this product was developed from university research to commercialization, we are also introducing a new co-creation project called “Eki-matope,” which uses AI to translate ambient station sounds into text, sign language, and onomatopoeia.

#### **Short Biography**

Tatsuya Honda is a UI designer and project leader of Antenna. At university he volunteered as a sign language interpreter and established a sign language club and NPO. From his graduation research he started working with deaf people on Antenna, a device to perceive new sounds, based on the theme of extending the human body and senses. Antenna has since been commercialized and is now used in 80% of the schools for the deaf in Japan. Tatsuya hopes to use design and technology to create more smiles in society. His awards include the MIT Innovators Under 35 Japan and Forbes 30 Under 30 Asia.