

2019 IEEE International Symposium on Haptic, Audio and Visual Environments and Games (HAVE 2019)

**Subang Jaya, Malaysia
3-4 October 2019**



**IEEE Catalog Number: CFP19HAV-POD
ISBN: 978-1-7281-2356-1**

**Copyright © 2019 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP19HAV-POD
ISBN (Print-On-Demand):	978-1-7281-2356-1
ISBN (Online):	978-1-7281-2355-4

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

Thursday, October 3

9:20 - 11:20

Morning Session: Haptic-Audio-Visual Systems and Applications

Venue: Function Room 3, University Building, Level 1

Session Chair: Ms. Chit Su Mon

Requirements Analysis and Preliminary Development of SwingBeats: A Real-Time Haptic Beat Tracking System for Dance Education 1

Navid Shaghaghi (Santa Clara University, USA)

Yu Yang Chee (Santa Clara University, USA)

Lawrence Howser (Santa Clara University, USA)

Richard Mora (Morafamily, USA)

Evaluation of 3DOHA enhanced Virtual Edutainment Application for Visually Impaired Users: A Pilot Study 7

Chit Su Mon (Sunway University & UCSI University, Malaysia)

Kian Meng Yap (Sunway University, Malaysia)

Azlina Ahmad (Universiti Kebangsaan Malaysia, Malaysia)

Evaluation of Multi-Point Dynamic Pressure Reproduction Using Microphone-Based Tactile Sensor Array 13

Emiri Sakiyama (The University of Tokyo, Japan)

Daichi Matsumoto (The University of Tokyo, Japan)

Masahiro Fujiwara (The University of Tokyo, Japan)

Yasutoshi Makino (The University of Tokyo, Japan)

Hiroyuki Shinoda (The University of Tokyo, Japan)

Development of a Haptic Feedback Actuator for an Endovascular Interventions Simulator Interface 19

Hafiz Rashidi Ramli (Universiti Putra Malaysia, Malaysia)

Norhisam Misron (Universiti Putra Malaysia, Malaysia)

M Iqbal Saripan (Universiti Putra Malaysia, Malaysia)

Fernando Bello (Division of Surgery, Oncology, Reproductive Biology and Anaesthetics, United Kingdom)

Design of Low-Profile Tactile Actuator with Rich Vibrotactile Stimulation For Wearable Applications 25

Georgios Korres (New York University Abu Dhabi, United Arab Emirates)

Mohamad Eid (NYU, USA)

Pseudorandom Proxy Testing of Internal Haptic Perception in Touch Styluses Intended for the Visually Impaired 31

Hong Jian Wong (Sunway University, Malaysia)

Kian Meng Yap (Sunway University, Malaysia)

1:30 - 3:30

Afternoon Session: Human Computer Interaction and Mid-air Haptics Applications

Venue: Function Room 3

Session Chair: Dr. Chin Teck Min

Mid-Air Haptic Algorithms for Rendering 3D Shapes 36

Orestis Georgiou (Ultrahaptics & University of Cyprus, United Kingdom)

Jonatan Martinez (Ultrahaptics, United Kingdom)

Adam Harwood (Ultrahaptics, United Kingdom)

Hannah Limerick (Ultrahaptics, United Kingdom)

Rory Clark (Ultrahaptics, United Kingdom)

Thresholds of Haptic and Auditory Perception in Midair Facial Stimulation 42

Saya Mizutani (The University of Tokyo, Japan)

Masahiro Fujiwara (The University of Tokyo, Japan)

Yasutoshi Makino (The University of Tokyo, Japan)

Hiroyuki Shinoda (The University of Tokyo, Japan)

Displaying Pain Sensation in Midair by Thermal Grill Illusion 48

Nakajima Mitsuru (The University of Tokyo & Graduate School of Frontier Science, Japan)

Yasutoshi Makino (Keio University, Japan)

Hiroyuki Shinoda (The University of Tokyo, Japan)

Using Ultrasonic Mid-air Haptic Patterns in Multi-Modal User Experiences 53

Damien F G Ablart (University of Sussex & SCHI Lab, Creative Technology Research Group. School of Engineering and Informatics, United Kingdom)

William Frier (Ultrahaptics, United Kingdom)

Hannah Limerick (Ultrahaptics, United Kingdom)

Orestis Georgiou (Ultrahaptics & University of Cyprus, United Kingdom)

Marianna Obrist (University of Sussex & SCHI Lab, Creative Technology Research Group. School of Engineering and Informatics, United Kingdom)

A Posture Recognition Model Dedicated for Differentiating between Proper and Improper Sitting Posture with Kinect Sensor 59

Chun Kai Chin (Tunku Abdul Rahman University College, Malaysia)

Kok Seng Eu (Sunway University, Malaysia)

Kian Meng Yap (Sunway University, Malaysia)

Tee Tiong Tay (Tunku Abdul Rahman University College, Malaysia)

Choe Yung Teoh (Senior Lecturer, Malaysia)

Developing Automatic Markerless Sign Language Gesture Tracking and Recognition System 64

Serge Demidenko (Sunway University, Malaysia)

Donald G. Bailey (Massey University & School of Food and Advanced Technology, New Zealand)

Gourab Sen Gupta (Massey University, New Zealand)

Nuwan Gamage (Monash University, Malaysia)

Rini Akmeliawati (The University of Adelaide, Australia)

Ye Chow Kuang (University of Waikato & Monash University, New Zealand)

Shujjat Khan (Massey University, New Zealand)

Sara Bilal (Whitireia, New Zealand)

Melanie Ooi (University of Waikato, New Zealand)

Friday, October 4

10:10 - 12:10

Morning Session: Haptic Game Interfaces, Tele-haptics and Tele-operation, and Visual Computing

Venue: Function Room 3, University Building, Level 1

Session Chair: Ms. Lim Woan Ning

Can we deploy Tactile Internet Applications over Wi-Fi, 3G and WiMAX: a Comparative Study based on Riverbed modeler 70

Hikmat Adhami (University of Ottawa, Canada & OGERO Telecom, Lebanon)

Mohammad Aljaafreh (University of Ottawa & School of Electrical Engineering and Computer Science, Canada)

Abdulmotaleb El Saddik (University of Ottawa, Canada)

Towards Standardization of Haptic Handshake for Tactile Internet: A WebRTC-Based Implementation 76

Ken Iiyoshi (New York University Abu Dhabi, United Arab Emirates)

Mahrugh Tauseef (New York University Abu Dhabi, United Arab Emirates)

Ruth Gebremedhin (New York University Abu Dhabi, United Arab Emirates)

Vineet Gokhale (Delft University of Technology, The Netherlands)

Mohamad Eid (New York University Abu Dhabi, United Arab Emirates)

Exploring the Feasibility of Computer Games in Mathematics Education 82

Su Ting Yong (The University of Nottingham Malaysia, Malaysia)

Peter Gates (The University of Nottingham, Malaysia)

Andy Chan (The University of Nottingham, Malaysia)

Chien Sing Lee (Sunway University, Malaysia)

Reginamary Matthews (The University of Nottingham Malaysia, Malaysia)

Kung Ming Tiong (The University of Nottingham Malaysia, Malaysia)

Augmented Reality 3D Cubes Puzzle Bingo Game for the Elderly 88

Woan Ning Lim (Sunway University, Malaysia)

Yunli Lee (Sunway University, Malaysia)

Ivan Anggoro (Sunway University, Malaysia)

Design of Virtual Reality Simulation-based Safety Training Workshop 94

Zheng Hong Sim (Sunway University, Malaysia)

Yvonne Chook (Sunway University, Malaysia)

Muhammad Amir Hakim (Sunway University, Malaysia)

Woan Ning Lim (Sunway University, Malaysia)

Kian Meng Yap (Sunway University, Malaysia)

GMSD-based Perceptually Motivated Non-local Means Filter for Image Denoising 100

Mohtashim Baqar (Sunway University, Malaysia)

Sian Lun Lau (Sunway University, Malaysia)

Mansoor Ebrahim (Iqra University, Pakistan)