2021 IEEE International Conference on Intelligent Reality (ICIR 2021)

Virtual Conference
12-13 May 2021

IEEE Catalog Number: CFP21Z98-POD
ISBN: 978-1-6654-4759-1

Copyright © 2021 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: CFP21Z98-POD
ISBN (Print-On-Demand): 978-1-6654-4759-1
ISBN (Online): 978-1-6654-0347-4

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

2021 IEEE International Conference on Intelligent Reality (ICIR)

ICIR 2021

Table of Contents

Message from the General Chair vii
Committee Members viii
Keynotes xi
Invited Speakers xvii
Application Competition Winners xx

Technical Papers

xR4DRAMA: Enhancing Situation Awareness using Immersive (XR) Technologies 1
Spyridon Symeonidis (Information Technologies Institute - CERTH, Greece), Sotiris Diplaris (Information Technologies Institute - CERTH, Greece), Nicolaus Heise (Deutsche Welle, Germany), Theodora Pistola (Information Technologies Institute - CERTH, Greece), Athina Tsanousa (Information Technologies Institute - CERTH, Greece), Georgios Tzanetis (Information Technologies Institute - CERTH, Greece), Elissavet Batziou (Information Technologies Institute - CERTH, Greece), Christos Stentoumis (up2metric P.C., Greece), Ilias Kalisperakis (up2metric P.C., Greece), Sebastian Freitag (Nurogames GmbH, Germany), Yash Shekhawat (Nurogames GmbH, Germany), Rita Paradiso (Smartex, Italy), Maria Pacelli (Smartex, Italy), Joan Codina (Universitat Pompeu Fabra, Spain), Simon Mille (Universitat Pompeu Fabra, Spain), Montserrat Marimon (Universitat Pompeu Fabra, Spain), Michele Ferri (Autorità di Bacino Distrettuale delle Alpi Orientali, Italy), Daniele Norbiato (Autorità di Bacino Distrettuale delle Alpi Orientali, Italy), Martina Monego (Autorità di Bacino Distrettuale delle Alpi Orientali, Italy), Anastasios Karakostas (Information Technologies Institute - CERTH, Greece), and Stefanos Vrochidis (Information Technologies Institute - CERTH, Greece)

Manipulating Avatars for Enhanced Communication in Extended Reality 9
Jonathon Derek Hart (University of South Australia, Australia), Thammathip Piumsomboon (University of Canterbury, Australia), Gun A. Lee (University of South Australia, Australia), Ross T. Smith (University of South Australia, Australia), and Mark Billinghurst (University of South Australia, Australia)

Creating Immersive Experiences Based on Intangible Cultural Heritage ..17
Theodora Pistola (Information Technologies - CERTH, Thessaloniki, Greece), Sotiris Diplaris (Information Technologies - CERTH, Thessaloniki, Greece), Christos Stentoumis (up2metric P.C., Athens, Greece), Evangelos A. Stathopoulos (Information Technologies - CERTH, Thessaloniki, Greece), Georgios Loupas (Information Technologies - CERTH, Thessaloniki, Greece), Theodore Mandilaras (up2metric P.C., Athens, Greece), Grigoris Kalantzis (up2metric P.C., Athens, Greece), Ilias Kalisperakis (up2metric P.C., Athens, Greece), Anastasios Tellios (Aristotle University of Thessaloniki, Greece), Despoina Zavraka (Aristotle University of Thessaloniki, Greece), Panagiota Koulali (Aristotle University of Thessaloniki, Greece), Vera Kriezi (Friends of Music Society, Athens, Greece), Valia Vraka (Friends of Music Society, Athens, Greece), Foteini Venieri (Panteion University of Social and Political Sciences, Athens, Greece), Stratos Bacalis (Tetragon, Thessaloniki, Greece), Stefanos Vrochidis (Information Technologies - CERTH, Thessaloniki, Greece), and Ioannis Kompatsiaris (Information Technologies - CERTH, Thessaloniki, Greece)

Augmented Reality Assisted Orbital Floor Reconstruction ..25
Yihao Liu (Johns Hopkins University, USA), Ehsan Azimi (Johns Hopkins University, USA), Nikhil Davé (Johns Hopkins University, USA), Cecil Qiu (Johns Hopkins University, USA), Robin Yang (Johns Hopkins University, USA), and Peter Kazanzides (Johns Hopkins University, USA)

Corner-Based Square Fiducial Marker Detection for Hand-Manipulated AR Objects ..31
Breawn Schoun (University of Colorado Denver, USA), Hawkar Oagaz (University of Colorado Denver, USA), and Min-Hyung Choi (University of Colorado Denver, USA)

Building a Motion-Aware, Networked Do-It-Yourself Holographic Display ..39
Amilcar Gomez Samayoa (George Mason University, USA), Javier Talavera (George Mason University, USA), Siem G. Sium (George Mason University, USA), Biao Xie (George Mason University, USA), Haikun Huang (George Mason University, USA), and Lap-Fai Yu (George Mason University, USA)

Interfacing Cyber and Physical Worlds: Introduction to IEEE 2888 Standards ..49
Kyoungro Yoon (Konkuk University, Seoul, Korea), Sang-Kyun Kim (Myongji University, Seoul, Korea), Sangkwon Peter Jeong (JoyFun Inc., Seoul, Korea), and Jeong-Hwan Choi (SKONEC Ent. Co., Ltd., Seoul, Korea)

Author Index 51 . . . . . .