

2020 IEEE International Conference on Artificial Intelligence and Virtual Reality (AIVR 2020)

**Virtual Conference
14 – 18 December 2020**



IEEE Catalog Number: CFP20053-POD
ISBN: 978-1-7281-7464-8

**Copyright © 2020 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:	CFP20053-POD
ISBN (Print-On-Demand):	978-1-7281-7464-8
ISBN (Online):	978-1-7281-7463-1

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

2020 IEEE International Conference on Artificial Intelligence and Virtual Reality (AIVR) **AIVR 2020**

Table of Contents

Message from the General Co-Chairs .xiv.....	
Message from the Program Co-Chairs .xv.....	
Organizing Committee .xvi.....	
Program Committee .xviii.....	
Keynotes .xxii.....	
Sponsors .xxv.....	

AI & VR

Using Semantic Segmentation to Assist the Creation of Interactive VR Applications .1.....	
<i>Marcel Tiator (University of Applied Sciences Düsseldorf), Anna Maria Kerkmann (Heinrich Heine University Düsseldorf), Christian Geiger (University of Applied Sciences Düsseldorf), and Paul Grimm (Fulda University of Applied Sciences)</i>	
Attention Estimation in Virtual Reality with EEG Based Image Regression .10.....	
<i>Victor Delvigne (University of Mons Mons; IMT Lille Douai), Hazem Wannous (IMT Lille Douai), Jean-Philippe Vandeborre (IMT Lille Douai), Laurence Ris (University of Mons), and Thierry Dutoit (University of Mons)</i>	
Interactive Design of Gallery Walls via Mixed Reality .17.....	
<i>Haikun Huang (George Mason University), Yuxuan Zhang (Wayfair Inc.), Tomer Weiss (New Jersey Institute of Technology), Rebecca W Perry (Wayfair Inc.), and Lap-Fai Yu (George Mason University)</i>	
Supporting Interaction in Augmented Reality Assisted Industrial Processes Using a CNN-Based Semantic Layer .27.....	
<i>Juan Izquierdo-Domenech (Universitat Politècnica de València), Jordi Linares-Pellicer (Universitat Politècnica de València), and Jorge Orta-Lopez (Universitat Politècnica de València)</i>	
An Immersive Node-Link Visualization of Artificial Neural Networks for Machine Learning Experts .33.....	
<i>Martin Bellgardt (RWTH Aachen University Germany), Christian Scheiderer (RWTH Aachen University, Germany), and Torsten W. Kuhlen (RWTH Aachen University Germany)</i>	

Workshop on Immersive Analytics (ImAna)

Immersive Visualization of Dengue Vector Breeding Sites Extracted from Street View Images .37.....	
<i>Mores Prachyabrued (Mahidol University), Peter Haddawy (Mahidol University; University of Bremen), Krittayoch Tengputtipong (Mahidol University), Myat Su Yin (Mahidol University), Dominique Bicout (Grenoble-Alpes University, VetAgro Sup; Laue-Langevin Institute), and Yongjua Laosiritaworn (Ministry of Public Health)</i>	
Mirrorlabs - Creating Accessible Digital Twins of Robotic Production Environment with Mixed Reality .43.....	
<i>Doris Aschenbrenner (TU Delft), Jonas S.I. Rieder (TU Delft), Danielle van Tol (TU Delft), Joris van Dam (TU Delft), Zoltan Rusak (TU Delft), Jan Olaf Blech (Aalto University), Mohammad Azangoo (Aalto University), Salo Panu (Aalto University), Karl Kruusmäe (University Tartu), Houman Masnavi (University Tartu), Igor Rybalskii (University Tartu), Alvo Aabloo (University Tartu), Marcelo Petry (INESC TEC), Gustavo Teixeira (INESC TEC), Bastian Thiede (TU Braunschweig), Paolo Pedrazzoli (SUPSI), Andrea Ferrario (SUPSI), Michele Foletti (SUPSI), Matteo Confaloneiri (SUPSI), Daniele Bertaggia (SUPSI), Thodoris Togias (University of Patras), and Sotiris Makris (University of Patras)</i>	
Exploring Visualisations for Financial Statements in Virtual Reality .49.....	
<i>Tanja Kojić (TU Berlin), Sandra Ashipala (TU Berlin), Sebastian Möller (TU Berlin & DFKI), and Jan-Niklas Voigt-Antons (TU Berlin & DFKI)</i>	
Virtual Reality Lifelog Explorer: A Prototype for Immersive Lifelog Analytics .53.....	
<i>Aaron Duane (IT University of Copenhagen), Björn Thór Jónsson (IT University of Copenhagen), and Cathal Gurrin (IT University of Copenhagen)</i>	
DatAR: An Immersive Literature Exploration Environment for Neuroscientists .55.....	
<i>Ivar Troost (Utrecht University, Utrecht, the Netherlands), Ghazaleh Tanhaei (Utrecht University, Utrecht, the Netherlands), Lynda Hardman (Centrum Wiskunde & Informatica, Amsterdam, The Netherlands; Utrecht University, Utrecht, The Netherlands), and Wolfgang Hürst (Utrecht University, Utrecht, the Netherlands)</i>	
CrowdAR Table - An AR System for Real-Time Interactive Crowd Simulation .57.....	
<i>Noud Savenije (Utrecht University), Roland Geraerts (Utrecht University), and Wolfgang Hürst (Utrecht University)</i>	

Special Session on "Avatars for AI & VR"

Photorealistic Avatars to Enhance the Efficacy of Self-Attachment Psychotherapy .60.....	
<i>Ibrahim Ghaznavi (Imperial College London), Duncan Gillies (Imperial College London), Dasha Nicholls (Imperial College London), and Abbas Edalat (Imperial College London)</i>	

Verbal Mimicry Predicts Social Distance and Social Attraction to an Outgroup Member in Virtual Reality .68.....	
	<i>Salvador Alvidrez (Queen’s University Belfast) and Jorge Peña (University of California at Davis)</i>
SnapMove: Movement Projection Mapping in Virtual Reality .74.....	
	<i>Brian A Cohn (Microsoft Research), Antonella Maselli (Microsoft Research), Eyal Ofek (Microsoft Research), and Mar Gonzalez-Franco (Microsoft Research)</i>
Unmasking Communication Partners: A Low-Cost AI Solution for Digitally Removing Head-Mounted Displays in VR-Based Telepresence .82.....	
	<i>Philipp Ladwig (University of Applied Sciences Düsseldorf, Germany), Alexander Pech (University of Applied Sciences Düsseldorf, Germany), Ralf Dörner (RheinMain University of Applied Sciences), and Christian Geiger (University of Applied Sciences Düsseldorf, Germany)</i>
MoveBox: Democratizing MoCap for the Microsoft Rocketbox Avatar Library .91.....	
	<i>Mar Gonzalez-Franco (Microsoft Research), Zelia Egan (Microsoft Research), Matthew Peachey (Dalhousie University), Angus Antley (Microsoft Research), Tanmay Randhavane (Microsoft Research), Payod Panda (Microsoft Research), Yaying Zhang (Microsoft Research), Cheng Yao Wang (Cornell University), Derek F. Reilly (Dalhousie University), Tabitha C Peck (Davidson College), Andrea Stevenson Won (Cornell University), Anthony Steed (University College London), and Eyal Ofek (Microsoft Research)</i>

Best Paper Session

Shooting Labels: 3D Semantic Labeling by Virtual Reality .99.....	
	<i>Pierluigi Zama Ramirez (University of Bologna), Claudio Paternesi (University of Bologna), Luca De Luigi (University of Bologna), Luigi Lella (University of Bologna), Daniele De Gregorio (Eyecan.ai), and Luigi Di Stefano (University of Bologna)</i>
Learning Kinematic Machine Models from Videos .107.....	
	<i>Lucas Thies (FAU Erlangen-Nuremberg), Marc Stamminger (FAU Erlangen-Nuremberg), and Frank Bauer (FAU Erlangen-Nuremberg)</i>
Towards Computer Aided Diagnosis of Autism Spectrum Disorder Using Virtual Environments .115	
	<i>Daniel Roth (Technical University of Munich), Mathis Jording (Forschungszentrum Jülich), Tobias Schmee (University of Würzburg), Peter Kullmann (University of Würzburg), Nassir Navab (Technical University of Munich), and Kai Vokeley (University Hospital Cologne)</i>
Exploring the Feasibility of Mitigating VR-HMD-Induced Cybersickness Using Cathodal Transcranial Direct Current Stimulation .123.....	
	<i>Gang Li (University of Glasgow), Francisco Macía Varela (University of Glasgow), Abdullah Habib (University of Glasgow), Qi Zhang (University of Glasgow), Mark McGill (University of Glasgow), Stephen Brewster (University of Glasgow), and Frank Pollick (University of Glasgow)</i>

Workshop on Ethics in AI & XR (AIXR)

- Malicious Design in AIVR, Falsehood and Cybersecurity-Oriented Immersive Defenses .130.....
Nadisha-Marie Aliman (Utrecht University) and Leon Kester (TNO)
- Introducing the Concept of Ikigai to the Ethics of AI and of Human Enhancements .138.....
Soenke Ziesche (Independent Researcher) and Roman Yampolskiy (University of Louisville)
- Using Virtual Reality for Scenario-Based Responsible Research and Innovation Approach for Human Robot Co-Production .146.....
Doris Aschenbrenner (TU Delft), Danielle van Tol (TU Delft), Zoltan Rusak (TU Delft), and Claudia Werker (TU Delft)

VR Focus

- A Review of Electrostimulation-Based Cybersickness Mitigations .151.....
Gang Li (University of Glasgow), Mark McGill (University of Glasgow), Stephen Brewster (University of Glasgow), and Frank Pollick (University of Glasgow)
- The Efficacy of a Virtual Reality-Based Mindfulness Intervention .158.....
Caglar Yildirim (Northeastern University) and Tara O'Grady (State University of New York at Oswego)
- Under the (Plastic) Sea - Sensitizing People toward Ecological Behavior Using Virtual Reality Controlled by Users' Physical Activity .166.....
Carolin Straßmann (University of Applied Sciences Ruhr West), Alexander Arntz (University of Applied Sciences Ruhr West), and Sabrina C. Eimler (University of Applied Sciences Ruhr West)
- An AR Work Instructions Authoring Tool for Human-Operated Industrial Assembly Lines .174....
Traian Laovic (IP Paris - Telecom SudParis), Emmanuel Bricard (e.l.m. leblanc SAS), Marius Preda (IP Paris - Telecom SudParis), and Titus Zaharia (IP Paris - Telecom SudParis)
- Future Mobility Solutions: A Use Case for Understanding How VR Influences User Perception .184
Onur Yildirim (ZHAW School of Engineering), Catlin Pidel (ZHAW School of Engineering), and Mirjam West (ZHAW School of Engineering)

AI Focus

- Style-Transfer GANs for Bridging the Domain Gap in Synthetic Pose Estimator Training .188.....
Pavel Rojtberg (TU Darmstadt), Thomas Pöllabauer (TU Darmstadt), and Arjan Kuijper (TU Darmstadt)
- Algorithm-Aware Neural Network Based Image Compression for High-Speed Imaging .196.....
Reid Pinkham (University of Michigan), Tanner Schmidt (Facebook Reality Labs), and Andrew Berkovich (Facebook Reality Labs)
- Lane Line Map Estimation for Visual Alignment .200.....
Minjung Son (Samsung Advanced Institute of Technology) and Hyun Sung Chang (Samsung Advanced Institute of Technology)

Workshop Modeling and Animating Realistic Crowds and Humans (MARCH)

- Virtual Reality to Study Pedestrian Wayfinding: Motivations and an Experiment on Usability .205..
Giuseppe Vizzari (University of Milano-Bicocca)
- A Virtual Reality Framework for Human-Virtual Crowd Interaction Studies .209.....
Michael Nelson (Purdue University) and Christos Mousas (Purdue University)
- Plane-Based Local Behaviors for Multi-agent 3D Simulations with Position-Based Dynamics .214...
Ritesh Sharma (University of California Merced), Tomer Weiss (New Jersey Institute of Technology), and Marcelo Kallmann (University of California Merced)
- Comfort of Aircraft Seats for Customers of Size Using Digital Human Model in Virtual Reality .218.....
Sarath Surendranadha Panicker (Delft University of Technology) and Toon Huysmans (Delft University of Technology)
- Avatars Rendering and Its Effect on Perceived Realism in Virtual Reality .222.....
Elena Molina (Universitat Politècnica de Catalunya), Alejandro Ríos Jerez (Universitat Politècnica de Catalunya), and Nuria Pelechano Gomez (Universitat Politècnica de Catalunya)

Industry

- Juxtopia® CAMMRAD PREPARE: Wearable AI-AR Platform for Clinical Training Emergency First Response Teams .226.....
Jayfus T. Doswell (Juxtopia), Justin Johnson (Juxtopia), Brandon Brockington (Juxtopia), Aaron Mosby (Juxtopia), and Arthur Chinery (Juxtopia)
- Mill Instructor: Teaching Industrial CNC Procedures Using Virtual Reality .231.....
Dustin Kessler (University of Applied Sciences Ruhr West), Alexander Arntz (University of Applied Sciences Ruhr West), Joachim Friedhoff (University of Applied Sciences Ruhr West), and Sabrina C. Eimler (University of Applied Sciences Ruhr West)
- Interactive and Scalable Layout Synthesis with Design Templates .235.....
Hameedullah Farooki (New Jersey Institute of Technology), Esra Ataer-Cansizoglu (Wayfair), Jae-Woo Choi (Wayfair), and Tomer Weiss (New Jersey Institute of Technology)

Workshop Extended Reality in Medical Imaging (XRMI)

- Using Marker Based Augmented Reality to Teach Autistic Eating Skills .239.....
Rahma Bouaziz (Taibah University, Al Madinah, Saudi Arabia), Maimounah Alhejaile (Taibah University, Al Madinah, Saudi Arabia), Raneem Al-Saedi (Taibah University, Al Madinah, Saudi Arabia), Abrar Mihdhar (Taibah University, Al Madinah, Saudi Arabia), and Jawaher Alsarrani (Taibah University, Al Madinah, Saudi Arabia)

Augmented Reality and Autism Spectrum Disorder Rehabilitation: Scoping Review .243.....	
	<i>Hanin A. Almurashi (Taibah University, Saudi Arabia) and Rahma Bouaziz (Taibah University, Saudi Arabia)</i>
Breast3D: An Augmented Reality System for Breast CT and MRI .247.....	
	<i>Benjamin Allison (University of Lincoln), Xujiong Ye (University of Lincoln), and Faraz Janan (University of Lincoln)</i>
MIXR: A Standard Architecture for Medical Image Analysis in Augmented and Mixed Reality .252	
	<i>Benjamin Allison (University of Lincoln), Xujiong Ye (University of Lincoln), and Faraz Janan (University of Lincoln)</i>

Special Session on "AI for VR/AR Gaming & Simulations"

A Serious VR Game for Acrophobia Therapy in an Urban Environment .258.....	
	<i>Costa Anton (University Politehnica of Bucharest), Oana Mitrut (University Politehnica of Bucharest), Alin Moldoveanu (University Politehnica of Bucharest), Jiri Kosinka (University of Groningen), and Florica Moldoveanu (University Politehnica of Bucharest)</i>
Exploring the Possibilities of Extended Reality in the World of Firefighting .266.....	
	<i>Janne Heirman (KU Leuven), Shivam Selleri (Royal Military Academy), Tom De Vleeschauwer (Belgian Navy), Charles Hamesse (Royal Military Academy), Michel Bellemans (Damage Control Center), Evarest Schoofs (OneBonsai), and Rob Haelterman (Royal Military Academy)</i>
Inverse Kinematics and Temporal Convolutional Networks for Sequential Pose Analysis in VR .274	
	<i>David C. Jeong (Santa Clara University), Jackie (Jingyi) Xu (University of Southern California), and Lynn C. Miller (University of Southern California)</i>
Invisible Dynamic Mechanic Adjustment in Virtual Reality Games .282.....	
	<i>Justus Robertson (University of York, York, UK), Rogelio E. Cardona-Rivera (University of Utah, UT, USA), and R. Michael Young (University of Utah, UT, USA)</i>

Posters and Demos

FaceAUG: A Cross-Platform Application for Real-Time Face Augmentation in Web Browser .290...	
	<i>Tianyue Ruby Sun (White Oaks Secondary School)</i>
Virtual Reality Integrated Multi-depth-Camera-System for Real-Time Telepresence and Telemanipulation in Caregiving .294.....	
	<i>Conrad Fifelski-von Böhlen (Carl von Ossietzky University Oldenburg), Anna Brinkmann (Carl von Ossietzky University Oldenburg), Stephan Mävers (Carl von Ossietzky University Oldenburg), Sandra Hellmers (Carl von Ossietzky University Oldenburg), and Andreas Hein (Carl von Ossietzky University Oldenburg)</i>
Problems with Physical Simulation in a Virtual Lego-Based Assembly Task Using Unity3D Engine .298.....	
	<i>Nor Farzana Syaza Jeffri (Universiti Teknologi PETRONAS) and Dayang Rohaya Awang Rambli (Universiti Teknologi PETRONAS)</i>

A Smartphone Thermal Temperature Analysis for Virtual and Augmented Reality .301.....	
	<i>Xiaoyang Zhang (State University of New York at Binghamton), Harshit Vadodaria (State University of New York at Binghamton), Na Li (State University of New York at Binghamton), Kyoung-Don Kang (State University of New York at Binghamton), and Yao Liu (State University of New York at Binghamton)</i>
"The Robot-Arm Talks Back to Me" - Human Perception of Augmented Human-Robot Collaboration in Virtual Reality .307.....	
	<i>Alexander Arntz (University of Applied Sciences Ruhr West), Sabrina C. Eimler (University of Applied Sciences Ruhr West), and H. Ulrich Hoppe (University of Duisburg-Essen)</i>
Immersive Captioning: Developing a Framework for Evaluating User Needs .313.....	
	<i>Chris J. Hughes (Salford University), Marta B. Zapata (Universitat Autònoma de Barcelona), Matthew Johnston (ThoughtWorks), and Pilar Orero (Universitat Autònoma de Barcelona)</i>
Thermodynamics Reloaded: Experiencing Heating, Ventilation and Air Conditioning in AR .319...	
	<i>Alexander Arntz (University of Applied Sciences Ruhr West), Sabrina C. Eimler (University of Applied Sciences Ruhr West), Dustin Keßler (University of Applied Sciences Ruhr West), Aleksandra Nabokova (University of Applied Sciences Ruhr West), and Sylvia Schädlich (University of Applied Sciences Ruhr West)</i>
Assessing the Effectiveness of Virtual Reality Gaming to Reduce Anxiety and Increase Cognitive Bandwidth .323.....	
	<i>Daniel Hawes (Carleton University School of Information Technology) and Ali Arya (Carleton University School of Information Technology)</i>
Immersive Virtual Reality Training for Inspecting Flagger Work Zones .327.....	
	<i>Daeyeol Chang (University of Missouri), James Hopfenblatt (University of Missouri), Praveen Edara (University of Missouri), and Bimal Balakrishnan (University of Missouri)</i>
Story ARTist .331.....	
	<i>Marie Kegeleers (Delft University of Technology) and Rafael Bidarra (Delft University of Technology)</i>
Study on Pseudo-Haptics during Swimming Motion in a Virtual Reality Space .333.....	
	<i>Hirooki Aoki (Chitose Institute of Science and Technology)</i>
Extended Abstract: CoShopper - Leveraging Artificial Intelligence for an Enhanced Augmented Reality Grocery Shopping Experience .337.....	
	<i>Yasmeen Alhamdan (Ryerson University), Saif Alabachi (University of Technology), and Naimul Khan (Ryerson University)</i>
High-Quality First-Person Rendering Mixed Reality Gaming System for in Home Setting .339.....	
	<i>Yu-Yen Chung (University of Texas at Dallas), Hung-Jui Guo (University of Texas at Dallas), Hiranya Garbha Kumar (University of Texas at Dallas), and Balakrishnan Prabhakaran (University of Texas at Dallas)</i>
A QoE and Visual Attention Evaluation on the Influence of Spatial Audio in 360 Videos .345.....	
	<i>Amit Hirway (Athlone Institute of Technology), Yuansong Qiao (Athlone Institute of Technology), and Niall Murray (Athlone Institute of Technology)</i>

A Review of Deep Learning Approaches to EEG-Based Classification of Cybersickness in Virtual Reality .351.....	
	<i>Caglar Yildirim (Northeastern University)</i>
Workload, Presence and Task Performance of Virtual Object Manipulation on WebVR .358.....	
	<i>Wenxin Sun (Xi'an Jiaotong-Liverpool University, Suzhou, China), Mengjie Huang (Xi'an Jiaotong-Liverpool University, Suzhou, China), Rui Yang (Xi'an Jiaotong-Liverpool University, Suzhou, China), Jingjing Zhang (Xi'an Jiaotong-Liverpool University, Suzhou, China), Liu Wang (Xi'an Jiaotong-Liverpool University, Suzhou, China), Ji Han (University of Liverpool, Liverpool, United Kingdom), and Yong Yue (Xi'an Jiaotong-Liverpool University, Suzhou, China)</i>
Rainbow Learner: Lighting Environment Estimation from a Structural-Color Based AR Marker .362	
	<i>Yuji Tsukagoshi (Osaka University), Yuki Uranishi (Osaka University), Jason Orlosky (Osaka University), Kiyomi Ito (Osaka University), and Haruo Takemura (Osaka University)</i>
Training with a World Champion: Augmented Reality Applications in Sport: Design-Led Research .366.....	
	<i>Stefania Palmieri (Politecnico di Milano), Alessio Righi (Politecnico di Milano), Mario Bisson (Politecnico di Milano), and Alessandro Ianniello (Politecnico di Milano)</i>
Annotation Tool for Precise Emotion Ground Truth Label Acquisition While Watching 360° VR Videos .371.....	
	<i>Tong Xue (Beijing Institute of Technology, Centrum Wiskunde & Informatica), Abdallah El Ali (Centrum Wiskunde & Informatica), Gangyi Ding (Beijing Institute of Technology), and Pablo Cesar (Centrum Wiskunde & Informatica)</i>
3D Model Retrieval Using Constructive Solid Geometry in Virtual Reality .373.....	
	<i>Samuel Börlin (University of Basel), Ralph Gasser (University of Basel), Florian Spiess (University of Basel), and Heiko Schuldt (University of Basel)</i>
Implementations of the Gesture-Based Immersive Interaction and ML-Driven Sound Generation for Haptic Companion Doll .375.....	
	<i>Lee Jen Tun (Japan Advanced Institute of Science and Technology), R.P.C Janaka Rajapakse (Tainan National University of Arts), Yi-Ping Hung (Tainan National University of Arts), and Kazunori Miyata (Japan Advanced Institute of Science and Technology)</i>
A Preliminary Investigation into a Deep Learning Implementation for Hand Tracking on Mobile Devices .380.....	
	<i>Monica Grusso (University of Basilicata), Nicola Capece (University of Basilicata), Ugo Erra (University of Basilicata), and Francesco Angiolillo (University of Basilicata)</i>
Artificial Intelligence Assisted Virtual Reality Warfighter Training System .386.....	
	<i>Aaron Gluck (GE Research), Jessica Chen (GE Research), and Ratnadeep Paul (GE Research)</i>
Investigating Learners' Motivation Towards a Virtual Reality Learning Environment: A Pilot Study in Vehicle Painting .390.....	
	<i>Miriam Mulders (Universität Duisburg Essen Bildungswissenschaften Learning Lab)</i>

From Virtual Reality to Neuroscience and Back: A Use Case on Peripersonal Hand Space
Plasticity .394.....
*Agata Marta Soccini (University of Torino), Francesca Ferroni
(University of Parma), and Martina Ardizzi (University of Parma)*

Eye Tracking Data Collection Protocol for VR for Remotely Located Subjects Using
Blockchain and Smart Contracts .397.....
*Efe Bozkir (University of Tübingen), Shahram Eivazi (University of
Tübingen), Mete Akgün (University of Tübingen), and Enkelejda Kasneci
(University of Tübingen)*

Author Index 403.