# IEEE VR 2023

# VGTC Virtual Reality Academy

The IEEE VGTC Virtual Reality Academy was established in 2022 to highlight the accomplishments of the leaders in the field. Criteria for election to the VR Academy include:

- Cumulative and momentous contributions to research and/or development.
- Broader influence on the field, the community, and on the work of others.
- Significant service and/or active participation in the community.
- Awardees of the VGTC VR Technical Achievement and Lifetime Achievement Awards are inducted the year they receive the award unless already a member of the VR Academy.

Candidates do not have to demonstrate strengths in all of the above areas.

In the second year of the VR Academy, a VR Academy Committee with six voting members was assembled by a non-voting chair. The chair was selected by the VR Awards Program Chair and confirmed by the VGTC Executive Committee. The committee members were confirmed by the VR Awards Program Chair.

The VR Academy Committee considered all nominees submitted in response to the two open calls for VR Academy nominations, all nominees for the VR Lifetime Achievement and Technical Achievement Awards, and nominations from members of the VR Academy Committee. Committee members met online to discuss the nominees; voting was performed by secret ballot, with members who had a conflict of interest with any nominee declared to be ineligible to vote for that nominee. The conflict-of-interest policy was based on that used by ACM SIGGRAPH. Each member submitted their votes to two external talliers, who independently summed the votes, ensured that they had the same results, and reported the anonymized results to the committee. The committee agreed to elect to this year's class the following members, including the current recipients of the VGTC VR Technical Achievement and Lifetime Achievement Awards:

Tobias Höllerer
Hong Hua
Blair MacIntyre
Albert "Skip" Rizzo
Frank Steinicke
Wolfgang Stuerzlinger
Hideyuki Tamura

Brief biographical sketches of the new VR Academy members follow.

## Tobias Höllerer

Tobias Höllerer, Professor of Computer Science at the University of California, Santa Barbara, directs the Four Eyes Laboratory, conducting research in the four I's of imaging, interaction, and innovative interfaces. He earned his Ph.D. in Computer Science from Columbia University. Dr. Höllerer is a recipient of the US National Science Foundation CAREER award for his work on "Anywhere Augmentation," enabling seamless mobile augmented reality and demonstrating that even passive use of AR can improve the experience for subsequent users. He is a principal investigator on the UCSB Allosphere project, designing and utilizing display and interaction technologies for a three-story surround-view immersive situation room.

Dr. Höllerer is coauthor of a textbook on AR, as well as over 250 peer-reviewed journal and conference publications in the areas of AR and VR, computer vision and machine learning, intelligent user interfaces, information visualization, 3D displays, mobile and wearable computing, and social and user-centered computing. Several of these publications won Best Paper or Honorable Mention awards at such venues as IEEE ISMAR, IEEE VR, ACM VRST, ACM UIST, ACM MobileHCI, IEEE SocialCom, and IEEE CogSIMA. The 1997 paper "A Touring Machine: Prototyping 3D Mobile Augmented Reality Systems for Exploring the Urban Environment," to which he contributed during his doctoral studies, won the 2017 IEEE ISWC Early Innovator Award.

Dr. Höllerer is a senior member of the IEEE and IEEE Computer Society and an ACM Distinguished Scientist. He served as an associate editor for *IEEE Transactions on Visualization and Computer Graphics*, as program chair for ACM VRST 2016, IEEE VR 2015 and 2016, ICAT 2013, IEEE ISMAR 2010 and 2009, as general chair of IEEE ISMAR 2006, and as member of the steering committee of IEEE ISMAR.

## Hong Hua

Hong Hua is a Professor of Optical Sciences at the University of Arizona. Dr. Hua is widely recognized for her expertise in 3D display technologies for VR and AR, complex visualization systems, image acquisition technologies, and optical engineering in general. Her work has tackled several of the most challenging problems of VR and AR displays, including the vergence–accommodation conflict and mutual occlusion. For this work, Dr. Hua and her students received nine Best Paper or Distinguished Student Paper Awards at top IEEE, SPIE, SID, and ACM conferences. Her 2008 IEEE ISMAR Best Student Paper on an optical see-through head-worn display with addressable focal planes defined a major research theme in wearable displays in both academia and industry for over a decade. Her 2003 IEEE VR Best Paper presented SCAPE, a room-sized multi-user collaborative augmented virtual environment integrated with multimodal interface devices. Dr. Hua has published over 250 technical papers and presentations and holds more than 50 issued US and foreign patents.

Dr. Hua served IEEE ISMAR as Area Chair in 2007 and 2012 and has been a program committee for many years for IEEE ISMAR, IEEE VR, ACM VRST, ICCV, and CVPR. She was a founding general chair of the OSA Topical Meeting on 3D Image Acquisition and Display held annually since 2016, co-chair of the 2012 OSA 3D Display Technology Incubator Meeting, chair of the 2009 OSA Symposium on the Future of 3D Display: the Market Place and the Technology, and co-chair of the 2008 OSA Workshop on Illumination Modulation. Dr. Hua served as an associate editor for the *Journal of Science Advances*, and was a guest editor for *IEEE/OSA Journal of Display Technology* and for *Optics Express*. Dr. Hua is a Fellow of the National Academy of Inventors, SPIE, and OSA.

## Blair MacIntyre

Blair MacIntyre is Global Head of AR/VR Research for JPMorgan Chase and Co. and is on leave from Northeastern University, where he is a Professor in the College of Art, Media, and Design and in the Khoury College of Computer Sciences. Dr. MacIntyre was a Professor in the School of Interactive Computing in the College of Computing at Georgia Tech for 23 years, where he directed the Augmented Environments Lab's work on the design and implementation of interactive MR and AR environments. His current research interests are focused on privacy and ethics in the emerging AR/VR ecosystems and using these technologies to have an impact on pressing societal problems. He is looking at using distributed, social MR to support online conferences, meetings, and teaching, with the long-term goals of helping reduce air travel while increasing global access. Over the years, he has worked on programming and design tools for AR, understanding the potential of AR as a new medium for games, entertainment, education and work. He has also investigated military, industrial, and enterprise uses of AR.

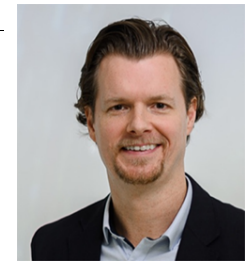
Dr. MacIntyre has been working on bringing AR to the web since 2008, when he started the open-source Argon project, and was a Principal Research Scientist at Mozilla, helping lead their web-based AR/VR efforts from 2016–2020 and was a co-designer of the initial WebXR APIs. Dr. MacIntyre has been doing research in AR since 1991 and has published over 100 academic papers in the field. He is coauthor of papers on novel AR systems that won the ACM UIST 2010 Lasting Impact Award and the ISWC 2017 Early Innovator Award. Dr. MacIntyre was general co-chair of IEEE ISMAR 2012 and IEEE VR 2020, and program co-chair of ISWC 2000, IEEE ISMAR 2003, and ACM UIST 2003.

## Albert “Skip” Rizzo

Albert “Skip” Rizzo is a clinical psychologist and neuropsychologist and Director of Medical Virtual Reality at the University of Southern California Institute for Creative Technologies. Dr. Rizzo is also a Research Professor with the USC Dept. of Psychiatry and at the USC Davis School of Gerontology. His career began as a clinician providing rehabilitative services for persons with traumatic brain injuries and stroke. Over the last 25 years, Dr. Rizzo has conducted research on the design, development and evaluation of VR systems targeting the areas of clinical assessment, treatment and rehabilitation across the domains of psychological, cognitive and motor functioning in both healthy and clinical populations. This work has focused on PTSD, TBI, Autism, ADHD, Alzheimer’s disease, stroke and other clinical conditions. Some of his recent work has involved the creation of intelligent virtual human (VH) patients that novice clinicians can use to practice skills required for challenging diagnostic interviews. He has also developed VHs for use as online/mobile virtual human healthcare guides and as clinical interviewers with automated sensing of facial, gestural, and vocal behaviors useful for inferring the state of the user interacting with these virtual human entities. In spite of the diversity of these clinical research and development areas, the common thread that drives all of his work with digital technologies involves the study of how interactive and immersive VR simulations can be usefully applied to address human healthcare needs beyond what is possible with traditional tools and methods.

Dr. Rizzo has authored over 350 peer-reviewed publications and has created over 60 VR systems for clinical and research applications. He was general chair of IEEE VR 2003 and general co-chair of IEEE VR 2004. Dr. Rizzo is also co-editor-in-chief of *Presence: Virtual and Augmented Reality* and editor for *Frontiers: Virtual Reality in Medicine.*

## Frank Steinicke



Frank Steinicke is a Professor of Human–Computer Interaction in the Department of Informatics at Universität Hamburg, where he served as Department Head from 2018 to 2020. From 2011 to 2014, Dr. Steinicke was a Professor of Computer Science in Media and chair of the Immersive Media Group in the Department of Computer Science at the University of Würzburg where, from 2012 to 2014, he was the director of the interdisciplinary Institute for Human Computer Media. Dr. Steinicke’s research is driven by understanding and exploiting human perceptual, cognitive and motor abilities and limitations to reform how people interact with and experience computer-mediated realities, including VR, AR, and MR.

Dr. Steinicke is perhaps best known for his contributions to the topic of redirected walking, for which he used psychophysical methods to determine points of subjective equality between physical actions in the real world and corresponding visual feedback in VR, and detection thresholds for the implementation of a range of imperceptible modifications to the mapping between one’s physical actions and the result of those actions in VR. These results, and the approach used to obtain them, have since been widely applied in a diversity of similar contexts, and have been instrumental to advancing VR locomotion research.

Dr. Steinicke has coauthored over 300 peer-reviewed scientific publications, which have had tremendous impact in the fields of VR and HCI. He was program co-chair for IEEE VR 2017 and 2018 and is currently the chair of the steering committee of the ACM SUI Symposium, and a member of the steering committee of the Gesellschaft für Informatik special interest group in VR and AR. He is also a member of the editorial boards of *IEEE Transactions on Visualization and Computer Graphics* and the *Frontiers in Virtual Reality* section on VR and Human Behaviour.

## Wolfgang Stuerzlinger

Wolfgang Stuerzlinger is a Professor in the School of Interactive Arts + Technology at Simon Fraser University, having previously served as a faculty member in Electrical Engineering and Computer Science at York University. Dr. Stuerzlinger's work aims to gain a deeper understanding of and to find innovative solutions for real-world problems. His current research areas include 3D user interfaces, HCI, occasionally failing systems, visual analytics, immersive analytics, VR, AR, graphical user interface layout, and alternatives & scenarios, with additional interests in computer graphics, large displays, head-worn displays, and human error behaviors.

Dr. Stuerzlinger presented the first method to objectively investigate the performance of 3D user interfaces for selection in 2009, which is independent of human and technical speed–accuracy tradeoffs and is now part of the standard methodology to assess the efficiency of a 3D user interface. Moreover, he has presented a series of methods to make 3D content creation and manipulation more efficient. Recently, he was the first to identify that the vergence–accomodation conflict fundamentally limits 3D interaction performance in current stereo display systems and VR headsets.

Dr. Stuerzlinger's group presented the first high-dynamic-range projection system and he was also part of the group that defined the field of immersive analytics, which investigates how new interaction and display technologies can be used to support analytical reasoning and decision-making. His work in this area focuses on the role of interaction as well as alternatives and scenarios.

For IEEE 3DUI, Dr. Stuerzlinger served as chair of the steering committee and three times as papers chair, prior to it being merged into IEEE VR in 2018. He was a founder of ACM SUI and has served many times on the program committees for IEEE VR and IEEE ISMAR.

## Hideyuki Tamura

Hideyuki Tamura is an Eminent Professor in the Research Organization of Science and Technology in Ritsumeikan University, where he was Professor in the College of Information Science and Engineering until his retirement in 2013. Dr. Tamura's research has spanned pictorial pattern recognition, digital image processing, AI, VR, and multimedia systems.

Dr. Tamura was Senior Research Official at the Electrotechnical Laboratory, MITI, Japan, the Director of the Media Technology Laboratory, Canon Inc., and a member of the executive board of Mixed Reality Systems Laboratory Inc. Dr. Tamura was Chief Research Director for the Key-Technology Research Project on Mixed Reality, sponsored by the Japanese government from 1997 to 2001, during which it performed leading-edge AR and MR research. He was responsible for the video-see-through head-worn display developed by this project being released by Canon Inc. for use by AR/MR researchers. He also served as the technical supervisor for the Hitachi Pavilion at the World Expo Aichi 2005, producing an exciting MR attraction viewed by 1.8 million visitors.

In 1998, Dr. Tamura established the Special Interest Group on Mixed Reality (SIG-MR) in Japan. He organized two international conferences, the International Symposium on Mixed Reality (ISMR) 1999 and 2001, which were later merged with the IEEE International Symposium on Augmented Reality (ISAR) to form the IEEE International Symposium on Mixed and Augmented Reality (ISMAR), first held in 2002. Dr. Tamura was program co-chair for IEEE ISAR 2001 and general co-chair of IEEE ISMAR 2003. He is currently an emeritus member of the IEEE ISMAR steering committee. Dr. Tamura received the IEEE ISMAR Long Lasting Impact Award in 2016. He is a Fellow of IEICE and VRSJ.

## Award Information

The IEEE VGTC Virtual Reality Academy was established in 2022 to highlight the accomplishments of the leaders in the field. New members that meet the criteria are inducted each year, including the recipients of the VGTC Lifetime Achievement and Technical Achievement Awards that year, if they are not already members. Nominations can be submitted either via the VGTC website at https://tc.computer.org/vgtc/awards/vr-award-nominations/ or via direct email to vgtc-vr-awards@vgtc.org.