The 2019 VGTC Virtual Reality Technical Achievement Award

Anatole Lécuyer

The 2019 Virtual Reality Technical Achievement Award goes to Anatole Lécuyer of Inria, Rennes, France, in recognition of his research on using Brain–Computer Interfaces (BCI) and pseudo-haptics in Virtual Reality (VR) systems. Dr. Lécuyer has been working in VR for over two decades. He coined the term "pseudo-haptics" in his dissertation research to describe how appropriate visual feedback could induce haptic sensations when using passive input devices. He later played a key role in introducing BCI to VR research and, over the past decade, has led the OpenViBE project, whose open-source software is used by many researchers worldwide to support real-time processing of brain signals. The IEEE VGTC is pleased to award Anatole Lécuyer the 2019 Virtual Reality Technical Achievement Award.

Anatole Lécuyer is currently Senior Researcher at Inria, the French National Institute for Research in Computer Science and Control, in Rennes, France. In 2001 he received a PhD in Computer Science from Paris-Sud University, and in 2010 an Habilitation in Computer Science from Rennes University. At Inria, he has headed since 2013 the 40-member "Hybrid" research team, dedicated to research in VR. He has a broad range of scientific interests and has published more than 250 refereed papers in VR, 3D user interfaces, haptics, human–computer interaction, BCI, neuro-engineering, and human perception. Since 2000, he has co-authored 27 papers presented at the IEEE Virtual Reality Conference. He has also co-edited the book Human Walking in Virtual Environments. In 2013, he was awarded the Inria–French Academy of Sciences "Young Researcher" Prize.

Anatole Lécuyer
Inria
Award Recipient 2019

Lécuyer entered the field of VR in 1998 by exploring the potential of haptic interfaces in VR applications for aeronautics. His best known result related to haptic feedback is the concept of "pseudo-haptics," a term that he coined in 2000, during his PhD research. Pseudo-haptic feedback generates haptic sensations by playing with visual effects, bordering on sensory illusions. This cost-effective approach has been extensively adopted in a wide range of interaction contexts. Since then, he has promoted a perception-based approach to VR, inventing a variety of techniques exploiting the limits and properties of human perception. These include real-time visual attention models for VR, gaze-based depth-of-field blur effects, camera motions for improving the sensation of walking, and haptic cues for producing the sensation of self-motion. He is presently studying avatars, with the aim of developing virtual selves that mix physiological computing and haptic interactions for more convincing illusions of virtual embodiment.

In 2005, Lécuyer made the radical move to study BCI for 3D interaction with virtual environments based on brain activity and electroencephalography (EEG). He played a major role in introducing this technology to VR by designing early interactive systems mixing VR and BCI, such as videogames directly controlled using brain waves. He helped democratize BCI by coauthoring several well-cited survey papers and leading the OpenViBE open-source software project since 2009. OpenViBE is one of the best known and most used BCI software systems, with more than 70.000 downloads. In 2012, he co-founded the startup company Mensia Technologies, which has been developing medical products based on OpenViBE for brain digital therapies, for example, for attention deficit disorders.

Anatole Lécuyer has served the community more than ten years, notably as Program co-Chair of the IEEE Virtual Reality Conference in 2015 and 2016, General co-Chair of the IEEE Symposium on 3D User Interfaces in 2012 and 2013, and General co-Chair of the IEEE Symposium on Mixed and Augmented Reality in 2017. He is currently an Associate Editor for the journals IEEE Transactions on Visualization and Computer Graphics, Presence, and Frontiers in Virtual Environments. He also served as Secretary of the IEEE Technical Committee on Haptics, and of the French Association for Virtual Reality.

Award Information

The IEEE VGTC Virtual Reality Technical Achievement Award was established in 2005. It is given every year to recognize an individual for a seminal technical achievement in virtual and augmented reality. VGTC members may nominate individuals for the Virtual Reality Technical Achievement Award by contacting the awards chair, Henry Fuchs, at vgtc-vr-awards@vgtc.org.

For more information, please visit https://people.rennes.inria.fr/Anatole.Lecuyer/.