The 2018 Visualization Technical Achievement Award

Anders Ynnerman

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Linköping University
Award Recipient 2018

The 2018 Visualization Technical Achievement Award goes to Anders Ynnerman for his contributions to medical visualization resulting in the development of virtual autopsies, which have had extraordinary impact in both in medicine and in communication of science to the public. The IEEE Visualization & Graphics Technical Committee (VGTC) is pleased to award Anders Ynnerman the 2018 Visualization Technical Achievement Award.

Biography

Anders Ynnerman received a PhD in physics from Gothenburg University in 1992 with a dissertation on computational atomic perturbation theory. During his PhD and as a postdoc at Oxford University, UK, and Vanderbilt, USA, he developed simulation codes for massively parallel computing systems and visualization methods for efficient data analysis. In 1997 he was appointed director of the Swedish National Supercomputer Centre (NSC) and in 2002 he founded the Swedish National Infrastructure for Computing, which he directed until 2007.

Prof. Ynnerman is currently holding the chair in scientific visualization at Linköping University and he is the founder and director of the Norrköping Visualization Center, a focal point for visualization and graphics research and development in Europe. The center has a public arena with a large-scale dome theater and interactive exhibits, showcasing visualization research and applications. An integrated strand of his research is thus visualization for public engagement in science.

His research on technical visualization deals with challenging problems in the context of applications. Early work on visualization included analysis of streaming data from simulations, and his interest in immersive and multimodal visualization is manifested in work on volumetric haptics for data analysis. Visualization of astrophysical data has been a signature application throughout his career. In 2002 he initiated a collaboration with the American Museum of Natural History that led to the astrovisualization software Uniview, now used in 150 planetariums world-wide, and to the spin-off company Sciss AB. His more recent work on the OpenSpace platform has received large attention in both astrophysics and visualization research. For instance, the OpenSpace subsystem for browsing planetary surfaces received the IEEE SciVis best paper award in 2017.

A substantial part of Anders' research contribution lies in the medical domain. In 2002 he co-founded the Center for Medical Image Science and Visualization (CMIV) at Linköping University. The work on multiresolution volume rendering and volumetric shading in medicine has been widely recognized and led to commercialization efforts such as the medical visualization table used for teaching medical students, now with more than 600 installations world-wide. The visualization table is, through the spin-off company Interspectral AB, also available in a public domain version and used in museums all over the world. An example of such an installation is described in his 2016 article in Communications of the ACM, in which the mummy visualization table at the British Museum is featured. The work on uncertainty visualization in medicine using animation of transfer functions deserves special mentioning. His current work in medical visualization deals with multimodal functional data from the latest imaging modalities.

Anders has received several awards for his research contributions, such as the Akzo Nobel Science Award in 2007, the Athena Award for medical clinical research in 2009, the Royal Academy of Engineering Sciences Gold medal in 2011, and HM the King's medal for contributions to medical image science in 2017. Ynnerman is a member of the Royal Swedish Academy of Sciences and the Royal Swedish Academy of Engineering Sciences.

Ynnerman is currently the head of a research division with a staff of 75, has advised 20 PhD students and mentored 6 postdoctoral associates. He has published more than 150 peer reviewed articles, holds several patents, and has co-founded 5 companies. His service to the academic community includes: papers chair of IEEE SciVis (2013-2014) and EuroVis (2007), Volume Graphics (2008) and general chair of Eurographics 2010. He has also repeatedly served on program committees of all the major visualization conferences and served as associate editor of IEEE *TVCG* and *Computers and Graphics*. He was chair of the Eurographics Association 2014-2016 and is currently the chair of the EuroVis steering committee.

Award Information

The IEEE VGTC Visualization Technical Achievement Award was established in 2004. It is given every year to recognize an individual for a seminal technical achievement in visualization. VGTC members may nominate individuals for the Visualization Technical Achievement Award by contacting the awards chair, Holly Rushmeier, at vgtc-vis-awards@vgtc.org.