2021 VGTC Visualization Technical Achievement Award

Daniel Weiskopf, University of Stuttgart, Germany

The 2021 VGTC Visualization Technical Achievement Award goes to Daniel Weiskopf for his research on quantifiable approaches, which has led to deep, powerful, and influential contributions to the visualization of volumes, flows, ensembles, and graphs.

Daniel Weiskopf is a Professor of Computer Science at the University of Stuttgart, Germany, where he co-directs the Visualization Research Center (VISUS) and serves as the Spokesperson of the Transregional Collaborative Research Center (SFB/Transregio 161) on "Quantitative Methods for Visual Computing."

He has a background in both physics and computer science. He received his Diplom degree (similar to M.Sc.) and his Dr. rer. nat. degree (similar to Ph.D.) in Physics in 1997 and 2001, respectively, from the University of Tübingen, Germany. Already during the work on his dissertation, he transitioned into visualization research and computer science, eventually leading to his Habilitation degree in Computer Science from the University of Stuttgart in 2005. Subsequently, he moved to Simon Fraser University, Canada, as a Tenure-Track Assistant Professor, before accepting his current position at the University of Stuttgart.

His research interests include a broad range of visualization topics. He entered the visualization community from an application perspective, using computer graphics techniques to visualize effects from special and general relativity. This work primarily targeted the explanatory character of visualization and led to public outreach in popular-science media and museum exhibitions. Later, he moved on to developing more generic methods for visual data analysis in science and engineering, in particular, techniques for texture-based flow visualization and volume rendering, which also led to co-authoring the book on *Real-Time Volume Graphics*. An overarching theme was efficient computation as the basis for interactive visualization – with a focus on leveraging graphics processing units (GPUs) and parallel processing. Complementing these visualization methods, he is also interested in visual analytics, in the visualization of graphs, trees, multidimensional data, ensembles, and uncertainty, as well as perception-oriented graphics. For example, he worked on integrating understandable and controllable machine learning techniques for video visual analytics. Other examples include extensions of parallel coordinates for multivariate data analysis or quantifying and visualizing uncertainty for networks and hierarchies. With his work on eye tracking, he has been aiming to improve evaluation approaches for visualization research and to build a bridge between quantitative and qualitative empirical methods. In this context, he co-founded the series of workshops on Eye Tracking and Visualization (ETVIS), establishing a connection between the visualization and eye tracking communities.

Photo by Max Kovalenko

He has always enjoyed addressing difficult research problems with teams of collaborators. He is very grateful for the opportunity to have worked and keep on working with many brilliant and inspiring people: students, doctoral researchers, postdoctoral associates, and collaborators from all over the world. He has graduated 13 doctoral researchers and mentored eight postdocs so far. Five of his advisees have become faculty members working in visualization or related areas.

He has co-authored more than 300 scientific publications, including more than fifty papers in *IEEE Transactions on Visualization and Computer Graphics (TVCG)*. He has been active in serving the research community — e.g., as a reviewer or as part of organizing committees of several conferences. He was co-editor of the Visualization Corner in Computing in Science & Engineering, served as an Associate Editor of *TVCG*, and was a member of the editorial boards of Computer Graphics Forum and The Visual Computer. He was paper co-chair of EGPGV 2009, EuroVis 2010, BioVis 2015 and 2016, SIGGRAPH Asia Symposium on Visualization 2016, IEEE PacificVis 2017, IEEE SciVis 2018 and 2019, and ACM ETRA 2020 and 2021. He chaired the steering committee of EGPGV and is currently a member of the IEEE VIS Steering Committee and the Executive Committee of VGTC.