

The 2020 Visualization Technical Achievement Award

Jean-Daniel Fekete



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Inria, France
Award Recipient 2020

The 2020 VGTC Visualization Technical Achievement Award goes to Jean-Daniel Fekete for his research innovations in network visualization, visual analytics infrastructure, and data physicalization. Jean-Daniel Fekete is Senior Research Scientist (DR1) at Inria, France, Scientific Leader of the Inria Research Lab Aviz that he founded in 2007 and joined Université Paris-Saclay in 2020.

He received his Ph.D. in Computer Science in 1996 from Université Paris-Sud (that became Université Paris-Saclay in 2020). He was recruited by Inria in 2002.

While still a student, Fekete collaborated with "Doctors Without Borders" (Médecins sans frontières) as a research assistant, co-founded a startup, and then a company to develop tools for the creation of computer-animated movies. After the company was sold, Fekete completed his Ph.D. and moved to an academic career remembering that interactive systems should be easier to build, and that powerful interactive systems should not force users to adapt to them but instead be the result of an iterative co-adaptation between users and the system.

Fekete's earlier work on visualization focused on two important areas: toolkits (such as the InfoVis Toolkit used by many researchers in the InfoVis community to create visualizations in a more powerful and simpler way) and network visualization techniques beyond the node-link diagrams: matrix-based and hybrid network visualization techniques. With Mohammad Ghoniem, they conducted controlled experiments that showed matrix visualization was more effective than node-link visualization for dense graphs on seven basic tasks, popularizing the use of adjacency matrix visualization for exploring dense graphs. With Nathalie Henry Riche, they created several hybrids and combined visualizations using adjacency matrices and node-link diagrams to improve the readability of social networks.

He has also been involved in the design of visualization techniques for dynamic networks, from large genealogies (used in commercial and open genealogical tools) to social networks evolving over several years with Ph.D. students Benjamin Bach, Nicola Pezzotti, Paola Valdivia, and Alexis Pfister.

Jean-Daniel Fekete has also investigated the use of physical interactors and visualization, in collaboration with Pierre Dragicevic, with Yvonne Jansen and Mathieu Le Goc. Yvonne and Pierre Dragicevic are now continuing to investigate the effectiveness and applicability of visualization beyond the computer screen, a domain that will expand in the forthcoming years.

Continuing with his toolkit work, Fekete has been exploring software architectures and computation models to facilitate the implementation of scalable visual analytics systems. Initially using pre-processing methods with Nadia Boukhelifa, Fanny Chevalier, and Wael Khemiri. Since 2015, he is investigating Progressive Data Analysis and Visualization as a new computation model to scale visual analytics, with Inria engineers (Romain Primet, Christian Poli), and Ph.D. students Emanuel Zraggen from Brown University, Jaemin Jo from Seoul University, Sriram Karthik Badam from University of Maryland, Nicola Pezzotti from Delfts University, and Yuheng Feng from Université Paris-Saclay.

Jean-Daniel Fekete is currently the head of a team of 20, including four amazing colleagues and researchers: Pierre Dragicevic, Petra Isenberg, Tobias Isenberg, and more recently Catherine Plaisant as a part-time Inria International Chair. He has advised 19 Ph.D. students and mentored 20 postdoctoral associates. He has published more than 200 peer-reviewed articles in conferences and journals. He is a member of the SIGCHI Academy, was a member of the IEEE Information Visualization Conference Steering Committee, member of the IEEE VIS Executive Committee, member of the Eurographics EuroVis Steering Committee, and ACM Distinguished Speaker. Most notably, he was the General Chair of the IEEE VIS Conference in 2014, the first time it was held outside of the USA, in Paris. He was also the President of the French-Speaking HCI Association (AFIHM) 2009-2013, Conference Chair of the IEEE InfoVis Conference in 2011, and Paper Co-Chair of the IEEE Pacific Visualization conference in 2011.