**"**Scalability in Exploratory Visual Data Analysis with Progressive Data Analysis"

**Jean-Daniel Fekete**
**Inria**

**Abstract**

Data science is making progress every day, thanks to the fast evolution of all its parts, such as databases, machine learning, simulation, and visualization. However, when it comes to the exploration of data resulting from analytical computations, I will explain why scalability remains an issue. The standard method for addressing scalability consists of adding more resources: more processors, more GPUs, more memory, and faster networks. Unfortunately, this method will not solve the scalability problem alone, because it does not solve the crucial issues of maintaining latency under critical limits to allow exploration, and of taming human attention during long-lasting computations.

Data Science uses ad-hoc methods to try to address scalability while limiting latency, but I will show that they remain unsatisfactory.

Progressive Data Analysis (PDA) emerged about a decade ago to address this scalability problem, showing promising solutions. I will demonstrate a few examples, such as the exploration of patient pathways at scale and high-dimensional data analysis. However, PDA is still lagging behind, and I will argue, this is mainly due to the domain boundaries coming from academic research. A roadmap is, therefore, necessary to progress towards a unified solution crossing these boundaries.

Bio:

Jean-Daniel Fekete is a Senior Research Scientist at Inria, France, head of the Research Lab Aviz at Université Paris-Saclay and Inria.

He received his PhD in Computer Science in 1996 from Université Paris-Sud (now Université Paris-Saclay). He was recruited by Inria in 2002 and became a Senior Research Scientist in 2006.  His main research areas are Visual Analytics, Information Visualization, and Human-Computer Interaction. He published more than 150 articles in international conferences and journals, including the most prestigious in visualization (TVCG, InfoVis, EuroVis, PacificVis)

and Human-Computer Interaction (CHI, UIST).

He has been granted the IEEE VGTC Visualization Career Award 2020 and is a member of the IEEE VGTC Visualization Academy, and ACM SIGCHI Academy. He is a member of the Eurographics publication board, and Associate Editor in Chief of IEEE Transactions on Visualization and Computer Graphics.

Jean-Daniel Fekete was the Chair of the EuroVis Best PhD Award Committee 2017-2021, the General Chair of the IEEE VIS Conference in 2014, the first time it was held outside of the USA in Paris, and the President of the French-Speaking HCI Association (AFIHM) 2009-2013.