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Flow as you've never seen it

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With the advancement of simulation and big data storage technologies and the ever-decreasing costs of hardware, our ability to derive and store data is unprecedented. However, a large gap remains between our ability to generate and store large collections of complex, time-dependent flow simulation data and our ability to derive useful knowledge from it. Flow visualization leverages our most powerful sense, vision, in order to derive knowledge and gain insight into large, multi-variate flow simulation data sets that describe complicated and often time-dependent behavior. This talk presents a selection of state-of-the-art flow visualization techniques and applications in the area of computational fluid dynamics (CFD), showcasing some of visualizations strengths, weaknesses, and, goals. We describe inter-disciplinary projects based on flow, where visualization is used to address fundamental questions-the answers of which we hope to discover in various large, complex, and time-dependent phenomena. It's flow like you've never seen it before.

Biography

Robert S Laramée received a Bachelor's degree in Physics, cum laude, from the University of Massachusetts, Amherst (ZooMass). He received a Master's degree in computer science from the University of New Hampshire, Durham. He was awarded a PhD from Vienna University of Technology (Gruess Gott TUWien), Austria at the Institute of Computer Graphics and Algorithms in 2005. From 2001 to 2006 he was a Researcher at the VRVis Research Center and a Software Engineer at AVL in the Department of Advanced Simulation Technologies. Currently, he is an Associate Professor in Data Visualizaton at Swansea University (Prifysgol Cymru Abertawe), Wales in the Department of Computer Science (Adran Gwyddor Cyfrifiadur). His research interests are in the areas of big data visualization, visual analytics and human-computer interaction. He has published more than 100 peer-reviewed papers in scientific conferences and journals and served as Conference Chair of EuroVis 2014, the premiere conference on data visualization in Europe.

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