

Making Decisions: Closing the Loop between Simulation, 3D Real-time Rendering and Visual Analytics

Michael Schwärzler¹

Abstract. A holistic analysis of simulation data requires to look at multiple levels-of-detail. At the lowest level, the data generated by single simulation runs can be analyzed in isolation, enabling a detailed understanding and validation of the underlying application-specific simulation. However, each single simulation run typically involves massive amounts of data, and the contained information is much too detailed for tasks like comparison, sensitivity analysis, or decision making. At the highest level, the result of a simulation run can be aggregated to a few quantitative performance indicators, enabling the comparison of a large number of simulation runs and deci-

sion making. Yet, the inevitable loss of information does neither allow for validating the simulation itself at this level, nor to understand details of the simulated system. In this talk, possible solutions for this problem are presented by giving an insight into several industry-related projects that are currently carried out at the VRVis Research Center: By tightly coupling simulation, 3D real-time rendering, and methods from visual analytics, it has become possible to explore the simulation space and efficiently search for optimal solutions interactively and in a replicable way.

¹ VRVis Research Center, Donau-City-Strae 1, 1220 Wien, Austria, email:schwaerzler@vrvis.at