# Controlling the Visualization on a Large Display Wall Remotely with Direct-Touch

Direct-touch interfaces have recently become a popular way of interacting with computers. However, in scientific visualization only few approaches, thus far, have been explored (e.g., see example on the right). However, large display environments have been a popular means of displaying and interacting directly-manipulatively with scientific visualizations for many years. One reason for this popularity is that scientific visualization, in
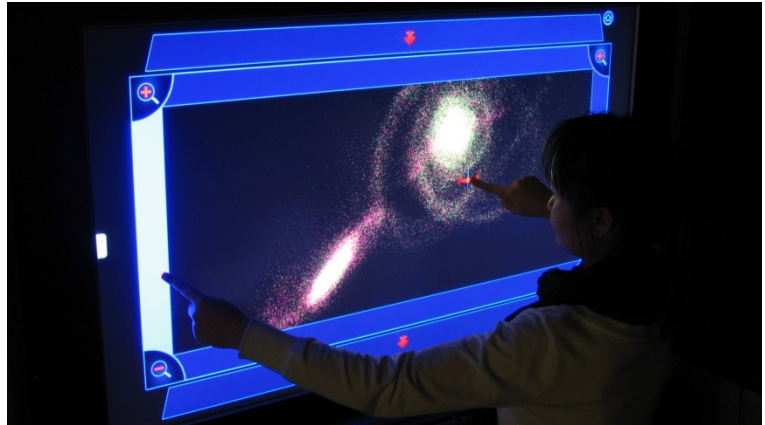
most cases, deals with 3D datasets and, therefore, is very suitable for 3D stereoscopic projection on a large display environment. The 2D interaction surface of touch screens, however, has interesting advantages that may be useful in scientific visualization environments. This project, therefore, will investigate the synthesis between a large display environment and a remote direct-touch interaction setting.

For this purpose we will use a vertical touch-interactive display, placed in front of the WILD wall environment at INRIA. Based on an existing interface for the touch display that allows people to perform 3D navigation tasks as well as manipulation of 3D objects, the task is to extend it to control the visualization displayed in the WILD environment. The interaction on the touch surface needs to happen in a way that users and observers intuitively understand the mapping between the two displays. Depending on the chosen application domain (e.g., molecular visualization including the docking of proteins, fluid dynamics simulations, astronomical simulations, or others) the project will develop and implement effective interaction techniques to enable selection, re-arrangement, changing the view, and exploring additional data sources. Another potential extension is examining the collaboration of several people when interacting with the visualization, either both at the touch display or one at the touch display and the other in the WILD environment. Moreover, we will examine the (anaglyphic) stereoscopic display of the visualization on both the large WILD wall and the smaller direct-touch environment.

Contact: Dr. Tobias Isenberg <tobias.isenberg@inria.fr>
               (http://tobias.isenberg.cc/)

Group: AVIZ team, INRIA Saclay
               (http://www.aviz.fr/)

Lab: AVIZ-INRIA, Université Paris Sud
               Bâtiment 650 (PCRI)
               91405 Orsay Cedex