Computer Science Colloquium

Visualization Research Topics

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Wednesday, 15 December 2004, Olsen 311
Refreshments at 2:30pm, Talk from 3:00-4:00pm

Extreme Programming in an Academic Research Lab
Mary Beth Smrtic

We discuss our experience using extreme programming in an academic environment in which the members of the development group have different schedules and other projects. We found that pair programming was an efficient and effective way to learn and share knowledge, and that unit testing and just-in-time design helped us get to an early, though scaled down, release. Our interpretation of pair programming felt limited and awkward at first until we realized that we could and should spend time independently learning and researching the tasks in addition to the work we do in pairs.

Haptic Sound
Alex Baumann and Jon Victorine

The HapticSound software, written for the Sensable Omni haptic device, consists of a three dimensional surface used to control various instrument setups and songs. When interacted with using the haptic device, the parameters of the surface, such as location on the surface, height of the surface, and other embedded parameters, as well as the information gathered from the haptic device, such as various twisting of the arm, pressure and velocity are used to affect many sound parameters of the instruments. We will then explain how this software is used as the basis for the development of an API that allows programmers to easily create sound mappings for haptic devices and other programs.

Monitoring User Interactions: Uses and Research
Howie Goodell and Chih-Hung Chiang

The Universal Visualization Platform, described last month's colloquium, records interactions for all users. We are exploring a variety of uses for this information, including displaying and analyzing exploration history; displaying representations of actions as a reminder and for "time travel" (a generalization of undo/redo); selecting groups of prior actions to repeat them, or to make them a macro; and adapting the interface, or proposing likely continuations based on probabilistic analysis of prior actions. We are also pursuing practical applications, such as customizing systems with prerecorded templates, and regression testing of our system with complex sets of recorded interactions. Many of the same ideas could be applied to any interactive system, and we will include a summary of such uses in a variety of prior systems.