

AttrActive Windows: Active Windows for Pervasive Computing Applications

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ABSTRACT

We introduce the AttrActive Windows user interface, a novel approach for presenting interactive content on large screen, interactive, digital, bulletin boards. Moving away from the desktop metaphor, AttrActive Windows are dynamic, non-uniform windows that can appear in different orientations and have autonomous behaviours to attract passers-by and invite interactions.

Categories & Subject Descriptors: H.5.2 User Interfaces
Graphical user interfaces (GUI).

General Terms: Design, Human Factors.

Keywords: Pervasive computing, proactive interface, adaptive behavior, digital bulletin boards, gestural interaction.

MOTIVATION

The Plasma Poster Network (PPN) is a network of large screen, interactive, digital, bulletin boards [1]. The PPN offers community members a means to easily publish digital content (URLs, text, images) to public spaces. The user interface for Plasma Posters is AttrActive Windows, an interface that moves away from the desktop metaphor of the PC screen to a more appropriate metaphor for public bulletin boards: the paper flier metaphor. Our aim is to draw the attention of passers-by and to invite actions that are appropriate for interacting with content posted on touch-screen, public boards.

ATTRACTIVE WINDOWS

Figure 1 illustrates the appearance of postings on one of our Plasma Posters. The posting display on the left shows a standard GUI window and an AttrActive Window, shown here rotated and folded. The content of each AttrActive Window is live, and users can rotate, fold and move windows through simple gestures.

The content of an AttrActive Window is a copy of a GUI window running remotely. Mouse and keyboard events are sent from the AttrActive Window back to its corresponding GUI window, providing dynamic content.

Each AttrActive Window is supported by a mesh of particles linked by springs to its neighbors (Figure 2). The original bitmap content is used as a texture to display the original GUI window content. A gravity force is applied to each particle of the AttrActive Window and attachment points (e.g., pushpins) are used to anchor the window's particle mesh in place.

Thanks to our 3D physical model (based on cloth animation using OpenGL [2]), dynamic behaviors such as movement in the wind

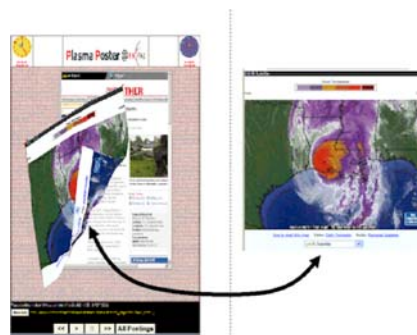


Figure 1: An AttrActive Window is paired with a uniformly represented GUI window that runs offscreen.

have been implemented. A force is applied to the bottom row of particles of each AttrActive Window. We are experimenting with other autonomous and attractive behaviors for windows.

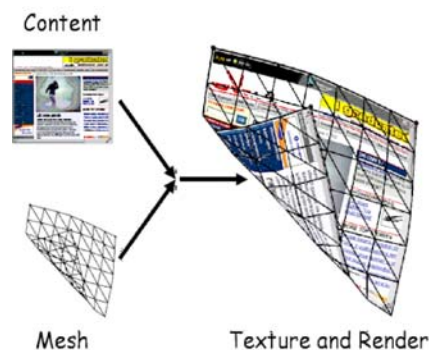


Figure 2: Image content and mesh model are combined to render an AttrActive window.

REFERENCES

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