

# MoneyTree: Ambient Information Visualization Of Financial Data

**Peter Eades, Xiaobin Shen**

National ICT Australia  
The University of Sydney  
Madsen Building, F09. University of Sydney NSW 2006

[peter@cs.usyd.edu.au](mailto:peter@cs.usyd.edu.au) , [xshen@cs.usyd.edu.au](mailto:xshen@cs.usyd.edu.au)

## Abstract

Ambient information visualization is a display of information outside the focus of attention of the viewer. Ambient displays normally do not reside on the screen of a desktop computer, but exist in the general environment, in the periphery of the user's attention. The aim is not only to provide useful information, but also to blend in with the surroundings and to be appealing to the eye.

In this paper we use ambient visualization to represent financial data.

Financial visualization is the practice of making large financial datasets into images. In comparison to the bland financial data, the visualization is easier for people to understand, especially as the image changes.

In this paper we describe a research project that uses different images of trees to represent the real-time changes in stock prices and volume.

**Keywords:** Ambient information visualization, financial data, tree

"Copyright 2004, Australian Computer Society, Inc. This paper appeared at the Pan-Sydney Area Workshop on Visual Information Processing (VIP2003), Sydney. Conferences in Research and Practice in Information Technology, Vol. 36. M. Piccardi, T. Hintz, X. He, M. L. Huang, D. D. Feng, J. Jin, Eds. Reproduction for academic, not-for profit purposes permitted provided this text is included."

## 1 Introduction

With continual development in display technologies, scientists, artists, and graphic designers have begun to break free from the limitation of traditional desktop computer screens. When walls and tables become screens [Li et al. 2000], methods for presenting suitable information on such surfaces raise new problems. Human focus of visual attention is quite narrow in comparison to current large screens, and it is clear that some of the large screen space must be in the periphery of the user's attention. *Ambient* displays, as "decoration of the architectural space" rather than the central focus of a user's attention, have been investigated as background media [Wisneski et al. 1998].

In our project, we use different tree images to represent dynamic stock price and volume data, and allow people to get price change information visually. Our aim is twofold:

- Provide a pleasant visual decoration which shows stock price and volume data.
- Inform the user of changes in this data.

### 1.1 Ambient Information Visualization

Information visualization is commonly defined as "the use of computer-supported, interactive, visual representations of abstract data to amplify cognition" [Card et al. 1997]. *Ambient information visualization* is "the use of aesthetically pleasing displays of information which sit on the periphery of a user's attention" [Jennifer et al. 2003]. This can not be achieved by using a traditional computer desktop display.

These days, ambient visualization involves real-time, real-world information from distributed sensor networks (sensors, RIFID readers, cameras, automation controllers, etc) to deliver better quality information about assets, inventory, location, status and other critical data. On the other side, people need better ways to interpret and understand this





