3D SPACE

Special Project in Advanced Computer Environments

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PhD thesis submitted for the degree of Doctor of Philosophy, in the School of Information Technology, Bond University, December 2003.

Abstract

The primary objective of this research is to use the benefits offered by computerized **three dimensional graphics** and apply those to the field of **human computer interaction**. Focussing primarily on the interactive content of the 3D world, this research describes a range of innovative new interface elements demonstrating specific new 3D interfaces/components designed to provide a new **interactive 3D** method for handling a range of particular common real-world tasks (ranging from simple value setting tasks up to larger scale systems for browsing structured sets of hierarchical data). These systems incorporate new design concepts such as **active 3D interfaces** that present their data to the user rather than statically waiting for the user to interact with them (these systems prove particularly useful in the presentation of large sets of data). Overall this set of components introduces a range of new interface styles that prove very effective in many mainstream real world tasks.

In addition to the development of these systems, this project demonstrates a new high level 3D interface development tool designed to simplify the challenge of constructing interactive 3D user interfaces and in doing so make **3D interface development** available to a wider developer base. By constructing the components mentioned above in a structured generic form, this combination of a new development tool and a range of re-usable components provides a **strong development platform,** from which more complex **interactive 3D interfaces** can be constructed.

In essence the core idea that underlies this research is making the construction of interactive and functional 3D interfaces simpler to undertake (by developing effective re-usable components to handle mainstream tasks) while at the same time generating resulting 3D interfaces that are more effective and more capable of providing users with an enjoyable and functional 3D working environment.

Acknowledgements

The author would like to acknowledge the contributions of many people to this research including the project supervisors at Bond University, Dr Zheng da Wu and Dr Michael Rees. The support and flexibility they provided throughout the research enabled the project to reach its full potential.

Personal thanks particularly go to Dr. Rees for his inputs in the areas of user testing and interface research and to Dr. Wu for introducing the author to 3D graphics many years ago and providing support in this area throughout the research project.

The author would also like to thank Bond University for its continual support of this research and provision of scholarships, without which this project could not have been completed. Many thanks are also passed on to all of the test users, all of whom freely contributed their time and without whom this research would not exist. Last but not least the author would like to thank his family whose support throughout this project, particularly at the hardest points, helped carry it through to the completion.

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