User Interaction Discovery in Virtual Environments

Student Name: L. A. Sutton

Supervisor Name: W. Li

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***Abstract* —**

Context/Background

Aims

Method

Results

Conclusions

***Keywords* —** user interaction; virtual environments; visualisation; clustering

I INTRODUCTION

In the 21st century, people spend more time than ever interacting in virtual environments, whether that takes the form of social networking, email or video games. Many previous attempts have been made to visualise the structures that form within these environments (Freeman 2000)

In this project I have taken 'User Interaction' to mean any way in which users consciously affect other users so that the other users would be able to identify the specific other users they were interacting with. This could take place over a period of time of be instantaneous; it could be between two users or many; it could be a single event or it could be ongoing. For example I will consider interactions such as users sending emails between one another but I will not consider interactions such as a user's advertising preference changing what another user sees as this falls beyond the scope I have layed out.

Virtual environments in this project will mean any environment in which users are able to interact in the ways I have previously mentioned, mediated by computers. This could be for example a video game, a social networking website or a messaging system such as email.

A Project Motivation

While there have been many previous attempts to visualise the structure of virtual environments, these have almost exclusively focused on static representations of the relationships between users. From this a lot of data has been gathered about information presentation

B Project Aims

II RELATED WORK

This section presents a survey of existing work on the problems that this project addresses. it should be between 2 to 4 pages in length. The rest of this section shows the formats of subsections as well as some general formatting information for tables, figures, references and equations.

A Main Text

The font used for the main text should be Times New Roman (Times) and the font size should be 12. The first line of all paragraphs should be indented by 0.25in, except for the first paragraph of each section, subsection, subsubsection etc. (the paragraph immediately after the header) where no indentation is needed.

B Figures and Tables

In general, figures and tables should not appear before they are cited. Place figure captions below the figures; place table titles above the tables. If your figure has two parts, for example, include the labels "(a)" and "(b)" as part of the artwork. Please verify that figures and tables you mention in the text actually exist. make sure that all tables and figures are numbered as shown in Table 1 and Figure 1.

Table 1: UNITS FOR MAGNETIC PROPERTIES

Symbol	Quantity	Conversion from Gaussian

C References

The list of cited references should appear at the end of the report, ordered alphabetically by the surnames of the first authors. References cited in the main text should use Harvard (author, date) format. When citing a section in a book, please give the relevant page numbers, as in (**?**, p293). When citing, where there are either one or two authors, use the names, but if there are more than two, give the first one and use "et al." as in , except where this would be ambiguous, in which case use all author names.

You need to give all authors' names in each reference. Do not use "et al." unless there are more than five authors. Papers that have not been published should be cited as "unpublished" (**?**). Papers that have been submitted or accepted for publication should be cited as "submitted for publication" as in (**?**) . You can also cite using just the year when the author's name appears in the text, as in "but according to Futher (**?**), we . . . ". Where an authors has more than one publication in a year, add 'a', 'b' etc. after the year.

III SOLUTION

This section presents the solutions to the problems in detail. The design and implementation details should all be placed in this section. You may create a number of subsections, each focussing on one issue.

This section should be between 4 to 7 pages in length.

IV RESULTS

this section presents the results of the solutions. It should include information on experimental settings. The results should demonstrate the claimed benefits/disadvantages of the proposed solutions.

This section should be between 2 to 3 pages in length.

V EVALUATION

This section should between 1 to 2 pages in length.

VI CONCLUSIONS

This section summarises the main points of this paper. Do not replicate the abstract as the conclusion. A conclusion might elaborate on the importance of the work or suggest applications and extensions. This section should be no more than 1 page in length.

The page lengths given for each section are indicative and will vary from project to project but should not exceed the upper limit. A summary is shown in Table 2.

Table 2: SUMMARY OF PAGE LENGTHS FOR SECTIONS

	Section	Number of Pages
I.	Introduction	2–3
II.	Related Work	2–3
III.	Solution	4–7
IV.	Results	2–3
V.	Evaluation	1-2
VI.	Conclusions	1

References

Freeman, L. C. (2000), 'Visualizing social networks', *Journal of social structure* **1**(1), 4.