Technology and User Interaction

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Abstract

The abstract summarises the content of the paper or report and should have 70-200 words (depending on the publisher or other requirements); It should state briefly what the paper is about (maybe also what methods were used), what its (new) results are, why it is important or significant. It can also be useful to state (or indicate implicitly) who is the addressed readership and whether its a review article, a short paper, a pilot study, an extension of previous work or a thesis. Try to avoid special symbols, abbreviations, and citations.

Table of Contents

1 Introduction

test (bille, 1999) There are different ways to write an introduction. Typically it contains background information and a review of literature which indicates how the study fits into the context of other previous work. This way the introduction can address the significance and importance of the study. Major related publications in big journals should be cited as well as closely related other articles. The literature review typically uses newer papers when it tries to address the state-of-the-art of a technique or recent developments. However, when first mentioning a method name the historically first source that introduced that concept should be cited. There are different citation styles and here is an example (Quinlan et al., 2003). The introduction typically motivates the general hypotheses, aims and research questions of a paper, report or thesis.

The research question is important.

Questions raised in the introduction can later be answered in the final discussion.

The introduction often ends with a brief overview of the structure or organisation of the paper, report or thesis.

2 Background

Why we need user engagement

2.1 The Skinner Box

The Skinner Box is a technique named by B.F. Skinner describing a small cage which houses a small animal, a lever and a way of delivering rewards to

the animal (Slater, 2005). The idea was to train the animal to continuously hit the lever. The animal gets rewarded at random intervals for lever pressing, with the possibility of punishment if the lever is not pressed (usually by electric shock). This technique has been around since the 1930s and has been implemented in video games since their inception.

Game designers have expanded the Skinner Box concept and made it feel like second nature to players. They have done this by offering virtual rewards to players who achieve pre- defined goals (this is obvious in any games that have levels and/or virtual currency) and recently by punishing players for not playing regularly (usually by devaluing the players hard earned virtual currency or by making in-game possessions deteriorate).

The Skinner Box concept is a great way to develop players obsession to a game while offering no real world reward, often leaving the player wondering why they wasted so much time on the game (Quinlan et al., 2003) (5 Creepy Ways Video Games Are Trying to Get You Addicted, n.d.).

2.2 Gamification

Gamification is the process of integrating game dynamics and techniques into non-game processes. This is usually done to increase interaction, productivity or satisfaction.

2.3 Virtual Reality

3 Elements in Game Design

3.1 Stories

3.2 Rewards

3.3 Usability

3.4 Competition

3.5 Environment

4 Existing Projects

4.1 Unit9

Unit9 is a production company involved in some of the latest high-tech advertising, gaming, and interactive systems. Unit9's projects combine the latest mobile technology such as:

- Accelerometer
- GPS
- Web (HTML5 etc.)

In order to create interactive:

- Advertisment
- Game

- Augmented Reality
- E-commerce

systems. Unit9 benefits greatly from the technique of gamification.

4.2 City Evolutions

"City Evolutions is an exciting collaboration between the City of Newcastle and the University of Newcastle. Ten sites within Watt Street will be lit up between sunset and 10pm, with digital projections on to selected walls and buildings for a year. The projections at each site will reflect and critique the fascinating history of Watt Street." (Tucker, 2013, p.4)

The sites running on Watt Street offer differing levels of interactivity; from no interactivity (the user only views) to low levels of interactivity, i.e. the user can move an object left and right by moving in front of a camera or the user can press buttons on their android smart phone to select movies to be projected.

4.3 Vivid

5 Proposal for the City Evolutions project

5.1 Closing the Loop

5.2 Social Media

6 Literature Review

6.1 CSSE Honours Thesis Specifications

For several years CSSE required the following specifications for an Honours report:

- Cover page, containing title, student name, submission date and supervisor name.
- Minimum of 50 pages, using 12 point font and double spacing (but at least 10,000 words).
- Minimum of 25 references.

6.2 Assessment

Assessment of an Honours report would typically look points such as:

- Clear understanding of the topic of the work.
- Literature review (analysis, citations, organization, comprehensiveness).
- Clear problem definition and description.
- Methods applied to solve the problem (complexity, suitability).

- Comparison of alternative approaches, identification of the problems.
- Results/analysis/conclusion.
- Report presentation

7 Methods

7.1 Research

7.2 Observation

Being a part of the City Evolutions team i have had access to a number of statistical data around the current level of interaction between the users and the various City Evolutions projects. Some of this data includes:

- Number of QR codes scanned (see table 1)
- Number of NFC chips scanned (see table 2)
- Number of interactions with various applications (see table 3 and figure 1)

Figure 1 shows the level of interaction over time of users with the City Evolutions Threkeld system.

7.3 Results

QR Code	Total number of scans	Number of scans per day
qr1	100	1

Table 1: QR Codes

add a graph in of interations over days

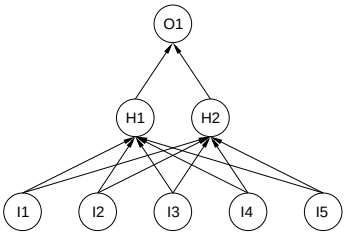

Figure 1: This is to show how to include graphics. Always put a reference in the caption where the graph comes from (this one is from the COMP3330 lectures).

QR Code	Total number of scans	Number of scans per day
NFC1	100	1

Table 2: NFC Chips

Project	Total Interactions	Interactions per day

Table 3: City Evolutions Projects

7.4 Just an example table

We include a table to show how it can be done (see Table 4).

Speed (mm/sec)	Methods	Robot	Team, References, Description
170	learned		Sony, (Hornby et al., 1999)??
230	hand-tuned	ERS-210(a)	German Team
245	hand-tuned	ERS-210(a)	Austin
???	hand-tuned	ERS-210(a)	NUbots
254	hand-tuned	ERS-210(a)	UNSW, P-walk of (Hengst et al., 2001)
270	learned	ERS-210(a)	UNSW/NICTA, (Kim and Uther, 2003)
295	learned	ERS-210(a)	NUbots, (Quinlan et al., 2003)
291	learned	ERS-210(a)	Austin, (Kohl and Stone, 2004)

Table 4: History of speed improvements for the Sony AIBO robot.

8 Discussion

Give an extended and detailed discussion of your study. Explain what we can learn from your study.

9 Conclusion

A brief final summary of the main achievements and outcomes. Possibly some suggestions for future work that can follow on from your project.

Acknowledgements

The author is grateful to ....

References

bille (1999).

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Hornby, G. S., Fujita, M., Takamura, S., Yamamoto, T., and Hanagata, O. (1999). Autonomous evolution of gaits with the Sony quadruped robot. In *Proceedings Of Genetic and Evolutionary Computation Conference, Vol. 2*, pages 1297–1304. Morgan Kaufmann.

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quadruped robots. In *Australasian Conference on Robotics and Automation (ACRA'2003)*.

Kohl, N. and Stone, P. (2004). Policy gradient reinforcement learning for fast quadrupedal locomotion. In *Proceedings of the IEEE International Conference on Robotics and Automation*, volume 3, pages 2619–2624.

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