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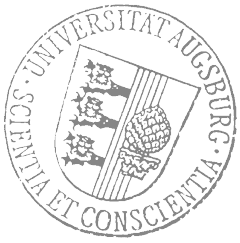
University of Augsburg
Faculty of Applied Computer Science
Department of Computer Science
Bachelor's Program in Computer Science



Bachelor's Thesis

Engagement Detection

Inferring conversational engagement from nonverbal behaviour

submitted by
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on 31.7.2014

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Prof. Dr. Elisabeth André

Abstract

This is the place where the *abstract* of your thesis is supposed to be. The abstract is an essential part of a thesis, providing a brief summary of the thesis. Students often do not recognise the importance of the abstract and thus do not spend the required time in order to produce a well defined abstract. You should realize that the abstract is the walking advertisement for your thesis. Any reader's interest in your work stands or falls with the motivation provided by your abstract. A student should know that usually the reviewer of his or her thesis start reading with the abstract and the summary while often just making quick scans over some parts of the main chapters. An abstract is what will and has to be remembered.

Statement and Declaration of Consent

Statement

Hereby I confirm that this thesis is my own work and that I have documented all sources used.

Amr Abdelraouf

Augsburg, 3.7.2014

Declaration of Consent

Herewith I agree that my thesis will be made available through the library of the Computer Science Department.

Amr Abdelraouf

Augsburg, 3.7.2014

Contents

Chapter 1

Introduction

1.1 Motivation

This thesis was proposed to help measure the engagement of an interviewee in a job interview situation. Through a simple mock interview the interviewee will be assessed on his/her performence. One of the most important attributes of that performence is whether or not s/he is engaged with and attentive to the interviewer. A simple playback of his/her performence coupled with the measurment of his/her engagement level will easily highlight weak spots in the mock interview.

1.2 Objectives

This thesis aims to measure the engagement levels of an interviewee through non verbal behaviour of said interview. It studies the conversational interaction with the interviewer, the responses to certain commands, his/her behaviour during certain segments of the interview.

1.3 Outline

This thesis is divided into three main sections. First it introduces the raw input data that will be used for processing each module of the engagement detection. Then it will explain the main modules used for this thesis in detail. And finally it will explain how the data comes together at the end to produce a level of engagement.

Chapter 2

Theoretical Background

2.1 Entenhausen

Figure ?? shows an image while you can cite a paper with [1] or several papers with [2, 3].

2.2 Section

2.2.1 PseudoCode

Chapter 3

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3.2 Scenemaker

Chapter 4

Main Modules

4.1 Mutual Facial Gaze

4.2 Directed Gaze

4.3 Adjacency Pair

4.4 Bachchanneling

Chapter 5

Bayesian Network

Chapter 6

Summery

Bibliography

[1] David Harel and Amir Pnueli. On the development of reactive systems. In *Logics and Models of Concurrent Systems*, volume 13 of *Nato Asi Series F: Computer And Systems Sciences*, pages 477–498, New York, NY, USA, 1985. Springer-Verlag New York, Inc. [cited at p. 3]

[2] Elisabeth Andre and Thomas Rist. *Cooperative Information Agents IV - The Future of Information Agents in Cyberspace*, volume 1860 of *Lecture Notes in Computer Science*, chapter Adding Life-Like Synthetic Characters to the Web, pages 51–89. Springer Berlin, Heidelberg, February 2004. [cited at p. 3]

[3] Thomas Rist, Stephan Baldes, Patrick Gebhard, Michael Kipp, Martin Klesen, Peter Rist, and Markus Schmitt. Crosstalk: An interactive installation with animated presentation agents. In *COSIGN '02: Proceedings of the 2th Conference on Computational Semiotics for Games and New Media*, Augsburg, 2002. [cited at p. 3]

Appendices

Appendix A

First Appendix

This is the place where the appendices are supposed to be. Appendices are everything that would just blow up your thesis but are still of some interrest for a reader that wants to get a deeper grasp on the details of your work.

List of Figures

List of Tables

List of Algorithms