Universität des Saarlandes
Max-Planck-Institut für Informatik

Thesis Tytple

Masterarbeit im Fach Informatik
Master's Thesis in Computer Science
von / by

Author Name

angefertigt unter der Leitung von / supervised by

betreut von / advised by

begutachtet von / reviewers

Saarbrücken, August 2015

Eidesstattliche Erklärung

Ich erkläre hiermit an Eides Statt, dass ich die vorliegende Arbeit selbstständig verfasst und keine anderen als die angegebenen Quellen und Hilfsmittel verwendet habe.

Statement in Lieu of an Oath

I hereby confirm that I have written this thesis on my own and that I have not used any other media or materials than the ones referred to in this thesis.

Einverständniserklärung

Ich bin damit einverstanden, dass meine (bestandene) Arbeit in beiden Versionen in die Bibliothek der Informatik aufgenommen und damit veröffentlicht wird.

Declaration of Consent

I agree to make both versions of my thesis (with a passing grade) accessible to the public by having them added to the library of the Computer Science Department.

Saarbrücken, August 2015 Mohamed Gad-Elrab

Abstract

Stereoscopic and automultiscopic displays suffer from crosstalk. An effect which greatly reduces image quality, viewer comfort and distort the perception of depth. Previously, only a limited work has been done on understanding the relation between crosstalk and the perceived depth with respect to the nature of the stimuli. Moreover most of the previous work is carried on simple monochromatic scenes. Since the human visual system uses numerous other cues than disparity to estimate the depth of an object in a stereo scene, monochromatic scenes are poor choice for understanding the above mentioned relation. Moreover, the model for depth resolution via disparity as provided by the current literature fails to justify why and how the perceived depth is affected by the crosstalk. In this work, we improved and performed more generalized experimentation to see how the depth perception is affected by the crosstalk for different kinds of stimuli. Based on the result of these experiments, we derived a model for human visual system's resolution of depth from disparity that accurately measures the depth of a stimulus as perceived by the human in presence of cross-talk. Finally some improved algorithms for removal/compensation of crosstalk in automultiscopic are developed.

Acknowledgements

Contents

Abstract v

Acknowledgements vii

Contents xi

List of Figures xiii

List of Tables xv

1 Introduction 1

1.1 Motivation . . . 1
1.2 Problem . . . 1
1.3 Proposed Solution . . . 1
1.4 Outline . . . 1

2 Background 3

2.1 Sec1 . . . 3
2.2 sec1 . . . 3
2.3 sec2 . . . 3

3 Approach 5

3.1 sec1 . . . 5
3.2 section2 . . . 5

4 Evaluation and Statistics 7

4.1 sec1 . . . 7
4.1.1 Statistics . . . 7
4.1.2 Manual Assessment . . . 7
4.1.2.1 Setup . . . 7

4.2 sec2 7

5 Conclusion and Outlook **9**

Bibliography **11**

List of Figures

List of Tables

3.1 shorten caption 6

Chapter 1

Introduction

1.1 Motivation

1.2 Problem

test

1.3 Proposed Solution

1.4 Outline

Chapter 2

Background

2.1 Sec1

- Definition
- English NED

2.2 sec1

- test 1
- test

2.3 sec2

section content

Chapter 3

Approach

3.1 sec1

3.2 section2

	Approach	Source	Count@Top-K			Prec@Top-K		
			1	**2**	**3**	**1**	**2**	**3**
`Persons`	Type-Aware	First Name	8	10	12	87.50	80.00	66.67
		Last Name	14	17	19	92.86	88.24	78.95
		rdfs:label	156	288	383	79.49	63.19	57.44
		redirects	113	210	285	69.91	57.62	50.18
	Combined	First Name	7	10	12	100.00	90.00	75.00
		Last Name	16	22	25	87.50	81.82	76.00
		rdfs:label	160	307	421	81.25	64.82	57.24
		redirects	108	210	288	67.59	60.00	54.51
	Transliteration	First Name	26	52	76	80.77	61.54	56.58
		Last Name	94	188	279	70.21	63.83	55.91
`Non-Persons`	Type-Aware	rdfs:label	269	519	742	53.16	43.16	36.66
		redirects	191	370	526	45.55	34.86	30.99
	Combined	rdfs:label	273	533	770	49.82	41.84	36.75
		redirects	195	378	539	46.67	39.42	34.69
`Categories`	Categories	Categories	118	234	340	67.80	52.99	46.18

TABLE 3.1: full caption

Chapter 4

Evaluation and Statistics

4.1 sec1

4.1.1 Statistics

4.1.2 Manual Assessment

4.1.2.1 Setup

4.2 sec2

Chapter 5

Conclusion and Outlook

Bibliography