

Technischen Universität München Computational Science and Engineering (Int. Master's Program)

Master's Thesis

Implementation of Contracting Curve Density Algorithm for Applications in Personal Robotics

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I hereby declare that this thesis wise indicated. I have only use	s is entirely the result of med the resources given in the	ny own work except where other- ne list of references.
München, den 8. März 2011		Shulei Zhu

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If someone contributed to the thesis... might be good to thank them here.

Abstract

An abstracts abstracts the thesis!

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1 Introduction

- 1.1 Model-based Image Segmentation
- 1.2 Sketch of The Contracting Curve Density (CCD) Approach
- 1.3 Overview of the Thesis

2 Related work

3 Software and Hardware Infrastructure

- 3.1 The Robot Operation System (ROS)
- 3.2 PR2

4 Shape-space Models and B-Spline Curves

- 4.1 Shape-space models
- 4.2 B-Spline Curves

5 The CCD Algorithm

- 5.1 Initialization
- 5.2 Local statistics
- 5.3 Refine parameters
- 5.4 Efficiency and complexity

6 Applications in Robotics

- 6.1 Perception
- 6.2 Tracking
- 6.3 Refinement of 3D percepts (Point Cloud)

7 Experiments and Results

8 Conclusion and Future Work