

Master Thesis

TITEL

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Kurzfassung

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Abstract

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1 Introduction

1.1 Research Question

1.2 Previous Works

1.3 Similar Approaches

Table 1.1: Combinations of the two-layered Phantoms

Series 1	
Lower Layer	Upper Layer
1 to 7,5	1 to 25
1 to 8,75	1 to 22,5
1 to 10	1 to 20
1 to 12,5	17,5
1 to 25	7,5
1 to 22,5	8,75
1 to 20	10
1 to 17,5	12,5

Series 2	
Lower Layer	Upper Layer
1 to 7,5	1 to 8,75
1 to 10	1 to 12,5
1 to 15	1 to 17,5
1 to 20	22,5
1 to 8,75	7,5
1 to 12,5	10
1 to 15	17,5
1 to 22,5	20

2 Experimental Set-up

2.1 Phantoms

2.2 Robot Control And Set-up

2.3 Calibration

2.3.1 Z-Wire Ultrasound Calibration

3 Neural Networks

3.1 Programming Language and IDE

3.2 Self-Organising Feature Maps

3.3 Implementation

4 Results

4.1 Data Basis

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5.1 Quality Measurements

5.2 Computational Efficiency

5.3 Classification Quality

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