
Contents

1	Introduction	1
1.1	Objectives	5
1.2	Contributions	5
1.3	Structure of the thesis	6
1.4	Related works	6
2	Papers	9
2.1	Paper1	9
2.1.1	Abstract	9
2.1.2	Introduction	9
2.1.3	Methods	10
2.1.4	Experiments and results	18
2.1.5	Discussion	21
2.2	Paper2	23
2.2.1	Abstract	23
2.2.2	Introduction	23
2.2.3	Materials and Methods	25
2.2.4	Results	34
2.2.5	Discussion	37
2.2.6	Conclusions	37
2.3	Paper3	39
2.3.1	Abstract	39
2.3.2	Introduction	39
2.3.3	Materials and method	40
2.3.4	Experimental results	44
2.3.5	Discussion	47
2.3.6	Conclusion and future work	47
2.4	Paper4	49
2.4.1	Abstract	49
2.4.2	Introduction	49
2.4.3	Related Work	51
2.4.4	Methods	52
2.4.5	Experiments and results	60
2.5	Paper5	65
2.5.1	Abstract	67
2.5.2	Introduction	67
2.5.3	Methods	68
2.5.4	Experiments and results	76

2.5.5	Discussion	80
2.5.6	Conclusions	81
3	Discussion	83
4	Conclusions and future research	85
4.1	Future research	86
A	Supplementary information	87
A.1	Paper1	87
A.2	Paper2	97
A.2.1	Appendix A	97
A.2.2	Appendix B	100
A.3	Paper4	103
A.3.1	Appendix A	103
A.3.2	Appendix B	105
A.4	Paper5	107
	Bibliography	111