

Table of contents

List of figures	xii
List of tables	xv
1 Introduction	1
1.1 Objectives	3
1.2 Contributions	4
1.3 Thesis Outline	10
2 Deep Learning	12
2.1 Feedforward Networks	13
2.2 Sequence Modeling	20
2.2.1 Convolutional Neural Networks	22
2.2.2 Recurrent Neural Networks	23
2.2.3 Attention Mechanisms	25
2.2.4 Transformers	29
2.3 Text Representation Learning	31
2.3.1 Non-Contextual Embeddings	34
2.3.2 Contextual Embeddings	35
3 Text Analytics in Social Media	39
3.1 Sentiment Analysis	42
3.1.1 Corpora	48
3.1.2 Proposed Approach	49
3.1.3 Evaluation	52
3.1.4 Analysis	55
3.2 Emotion Detection	61
3.2.1 Corpora	65
3.2.2 Proposed Approach	66

3.2.3	Evaluation	71
3.2.4	Analysis	74
3.3	Irony Detection	76
3.3.1	Corpora	80
3.3.2	Proposed Approach	82
3.3.3	Evaluation	86
3.3.4	Analysis	89
4	Pre-trained Deep Bidirectional Transformers for Spanish Twitter	100
4.1	Related Work	103
4.2	Proposed Approach	106
4.3	Evaluation	107
4.4	Analysis	116
5	Automatic Summarization	123
5.1	Attentional Extractive Summarization	127
5.1.1	Siamese Hierarchical Attention Networks	132
5.1.2	Siamese Hierarchical Transformers	134
5.2	Summarization of News Articles	139
5.2.1	State of the Art	140
5.2.2	Corpora	143
5.2.3	Evaluation	144
5.2.4	Analysis	149
5.3	Summarization of Spanish Talk Shows	155
5.3.1	Corpora	156
5.3.2	Evaluation	160
6	Conclusions and Future Work	165
	Appendices	172
A.1	Evaluation Metrics	172
A.2	Corpora Statistics	175
	References	176