Conceptual and methodological problems with bias detection and avoidance in natural language processing

Alicja Dobrzeniecka

2021-06-10

Contents

1	Intr	oduction	5
2	Cosine similarity and bias detection		7
	2.1	Word embeddings	7
	2.2	Cosine similarity and distance	7
	2.3	Cosine distance in a one-class bias detection	7
	2.4	Cosine distance in a multi-class bias detection	7
	2.5	Limitations of the approach	7
3	Wal	kthrough with the religion dataset	9
	3.1	Loading and understanding the dataset	10
	3.2	First look at the empirical distributions	10
	3.3	Looking at the islam-related words	10
	3.4	Bayesian model structure and assumptions	10
	3.5	Choosing predictors	10
	3.6	Dataset-level coefficients	10
	3.7	Model structure and assumptions	10
	3.8	Protected classes in Reddit and Google embeddings	10
	3.9	Dataset-level coefficients after debiasing	10
	3.10	Protected classes after debiasing	10

4 CONTENTS

Chapter 1

Introduction

Placeholder

Chapter 2

Cosine similarity and bias detection

Placeholder

- 2.1 Word embeddings
- 2.2 Cosine similarity and distance
- 2.3 Cosine distance in a one-class bias detection
- 2.4 Cosine distance in a multi-class bias detection
- 2.5 Limitations of the approach

Chapter 3

Walkthrough with the religion dataset

- 3.1 Loading and understanding the dataset
- 3.2 First look at the empirical distributions
- 3.3 Looking at the islam-related words
- 3.4 Bayesian model structure and assumptions
- 3.5 Choosing predictors
- 3.6 Dataset-level coefficients
- 3.7 Model structure and assumptions
- 3.8 Protected classes in Reddit and Google embeddings
- 3.9 Dataset-level coefficients after debiasing
- 3.10 Protected classes after debiasing