Controllable Natural Language Generation
Research Progress: First Year

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Outline

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3. State of the Art
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5. Future Research
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Introduction
Introduction

- NLG
- Controllable NLG
- Style Transfer
Challenges
Challenges

- No parallel data sets
- Preserving the meaning of the input
- Automatic evaluation
State of the Art
State of the Art

- RNN
  - Prabhumoye, Tsvetkov, et al. 2018
  - Rao and Tetreault 2018

- VAE
  - Shen et al. 2017
  - Xu, Cao, and Cheung 2019

- Transformer
  - Dai et al. 2019
  - Raffel et al. 2019

- Pre-trained models
  - Sudhakar, Upadhyay, and Maheswaran 2019
  - Dathathri et al. 2019

- Multiple Style Transfer
  - Subramanian et al. 2018
Ongoing Research
Ongoing Research

Research Problem

- Multi Attribute Text Style Transfer

Challenges

- Transfer of Multiple Styles
- Content Preservation
- Control styles transfer
- Accuracy Metrics
Ongoing Research

Solution

- Back Translation Prabhumoye, Tsvetkov, et al. 2018
- Transformer Dai et al. 2019
- External Input of Style Token
- Attention Based Style Averaging Tigunova et al. 2019
- Content Preservation at Training Time
- Multiple Losses
- Conditional and Multi-class Discriminator Dai et al. 2019
- POS-tagging and Annotator Based Accuracy Metric
# Ongoing Research

## Data Sets

- WMT14 EN-DE Translations *Neidert et al. 2014*
- IMDB Reviews *Lin, Matsumoto, and Mihalcea 2011*
- Yelp Reviews *Juncen Li et al. 2018*
- Amazon Reviews *Ni, Jiacheng Li, and McAuley 2019*
Future Research
Future Research

- Unsupervised Text Style Transfer: He et al. 2020, Yang et al. 2018
- Controllable Story Generation: Peng et al. 2018, Chandu et al. 2019
- Controlling Topic Sequence: Prabhumoye, Quirk, and Galley 2019
References


Thank you!