

Controllable Natural Language Generation

Research Progress: First Year

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Outline

- 1 Introduction
- 2 Challenges
- 3 State of the Art
- 4 Ongoing Research
- 5 Future Research
- 6 References

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**



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Thank you!