

Review Project: Controllable Text Generation

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❖ Introduction

◆ Controllable Text Generation(CTG)

- Generate texts whose attributes can be controlled
- A popular research area with wide applications

Controlled Attributes

- content(keyword, information, etc.)
- style(sentiment, politeness, etc.)
- personal information(gender, personality,etc)

Application Examples

- Story generation with controlled ending choice
- Dialogue generation with controlled topic
- Email generation with controlled politeness
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◆ Existing Research

- Task-specific, Context-specific
- Lack of a unifying framework

◆ Motivation

- Explore techniques by developing a classification method
- Form a systematic understanding for CTG

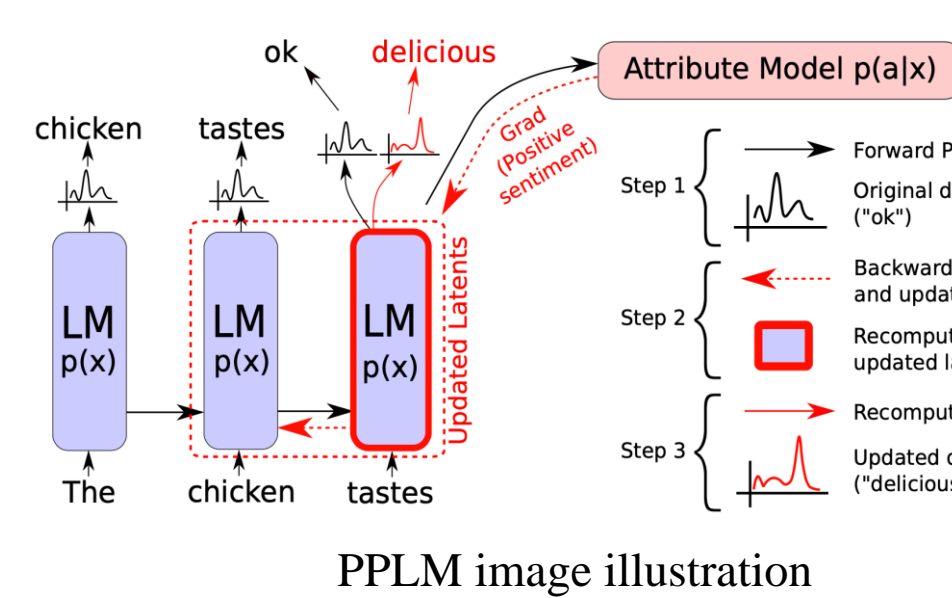
❖ Method

$$P(Y|X) = \prod_t P(y_t|y_1, y_2, \dots, y_{t-1}X)$$

X – input(source sequence), Y – output(target sequence), t – time step

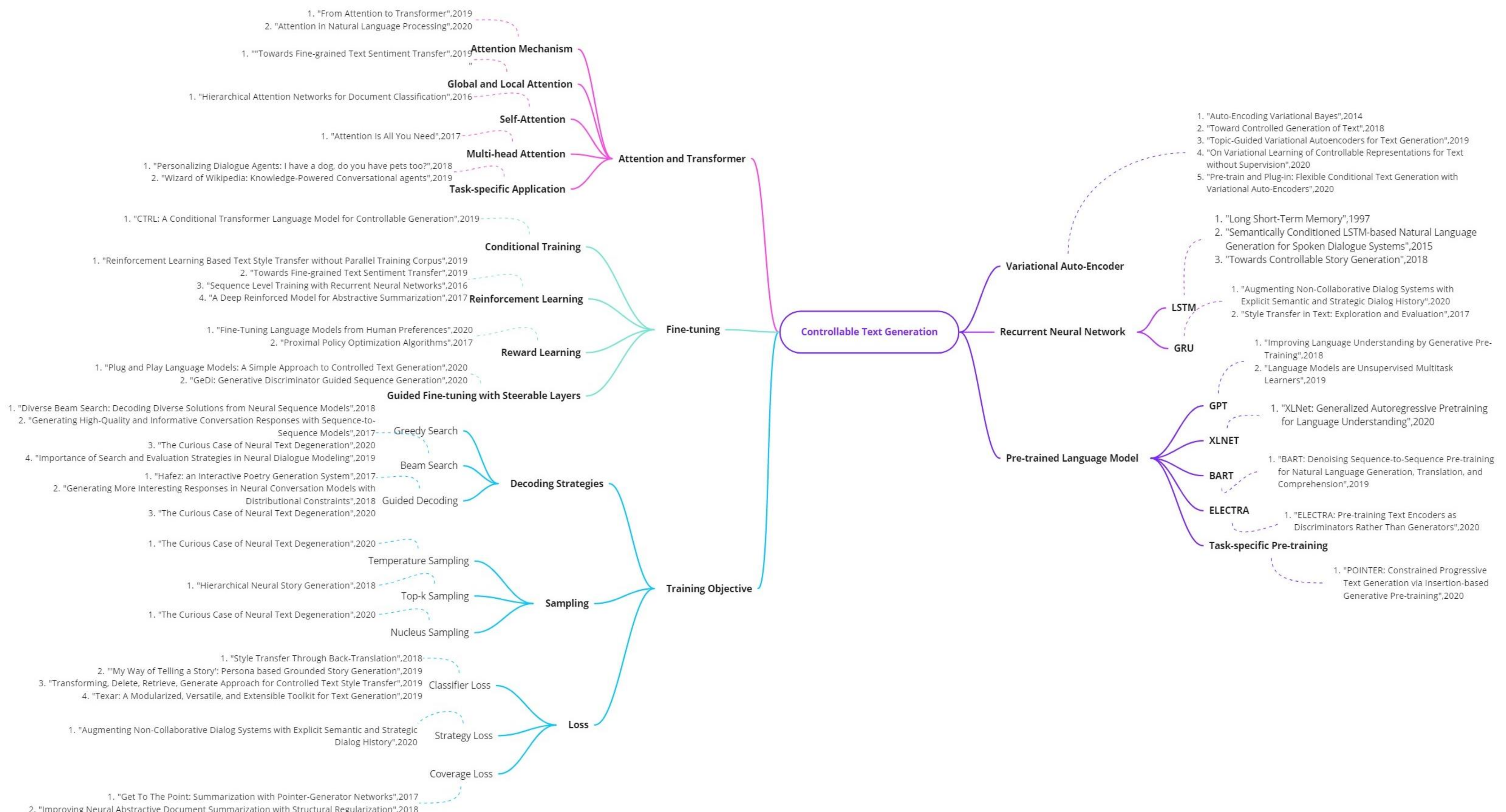
◆ Process

- Collect and filter research papers
- Decide the main categories and distribute papers
- Summarize the research goal for each paper
- Give detailed explanations to the technique
- Analyze the methods and models
- Evaluate with advantages and disadvantages



Sample Paper(PPLM)
Paper: 'Plug and Play Language Models: A Simple Approach to Controlled Text Generation'
Category: Fine-tuning with steerable layers
Goal: Controllable text generation on a range of attributes
Model: Pre-trained language model
Method: Three-phase process(forward-backward-forward)
Advantage: Simple and flexible
Disadvantage: Time consuming

❖ Review Content



❖ Open Problem and Future Work

◆ Open Problem

- Automatic Evaluation
- Better Control over attributes
- Higher quality of generated texts

◆ Future Work

- Extend the schema by including more papers and categories
- More evaluation methods: empirical analysis and parallel comparison
- Do a research project with Controllable Text Generation as research topic