Uncovering Hidden Themes in User-Created Poetry via Fine-Tuned LLMs

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Abstract

A large language model is fine-tuned to detect symbolism and allegory in user-submitted poems from Reddit's r/OCPoem (ensuring the model trains on content it has never seen before). Poetic elements are linked to real-world concepts using Wikidata to help interpret hidden themes in unseen texts. Evaluation combines human judgment and automated metrics to assess the quality of these interpretations.

Introduction

Grasping deeper meanings and symbolic themes in poetry can be especially challenging for readers with dyslexia or other reading difficulties. Automated tools that analyze symbolism could support improved reading comprehension and accessibility for diverse audiences. This project aims to develop a language model capable of detecting allegory and symbolism in user-generated poems, helping bridge that gap.

Motivation

I've always been fascinated by poetry and its rich layers of meaning, but I know that not everyone finds it easy to uncover these deeper themes. Many readers struggle with interpreting symbolism, and those with reading disorders face additional challenges. By building a model that helps identify and explain allegory in poems, this project can *promote greater literary accessibility* and *encourage cultural understanding across diverse communities*.

Problem Formulation

The goal of this project is to train a large language model to identify symbolic elements and underlying themes within user-generated poems from Reddit's r/OCPoem. While some NLP research has focused on sentiment analysis or theme detection in literature, few studies have targeted the fine-grained detection of symbolic meaning, especially in user-generated poetry. **This task is more subjective** than traditional classification problems; instead of fixed categories, the model generates structured interpretations including multiple symbols, themes, and explanations, making it closer to multi-label classification (multiple symbolic elements)/structured text generation (for explanation).

Workplan

1. **Data Collection** → Scrape user poems from Reddit's r/OCPoem using Reddit API and PRAW
2. **Preprocessing** → Clean text and extract entities from poems

3. **Entity Linking** → Use Wikidata SPARQL API to map poetic elements to symbolic concepts
4. **Model Training** → Fine-tune a pretrained LLM on the enriched dataset
5. **Evaluation** → Compare model outputs with human annotations and use metrics like Precision@k and BLEU to assess quality
6. **Deployment** → Apply model to new, unseen poems for symbolism detection

The project begins by collecting a novel dataset of user-generated poems scraped from Reddit's r/OCPoem subreddit using the Reddit API and PRAW. The poems will be preprocessed to clean text and extract meaningful entities. Entity linking is performed using the Wikidata SPARQL API to map poetic elements (like "moon" or "fire") to symbolic concepts. A pretrained large language model (GPT-2 probably) will then be fine-tuned on this dataset to generate structured interpretations of symbolism and allegory. Evaluation will be conducted using human annotations to assess interpretive quality, alongside automated metrics like Precision@k and BLEU scores to quantify alignment with expected symbolic themes. This workflow enables training and testing the model on poetry the LLM has never seen before, advancing computational literary analysis.