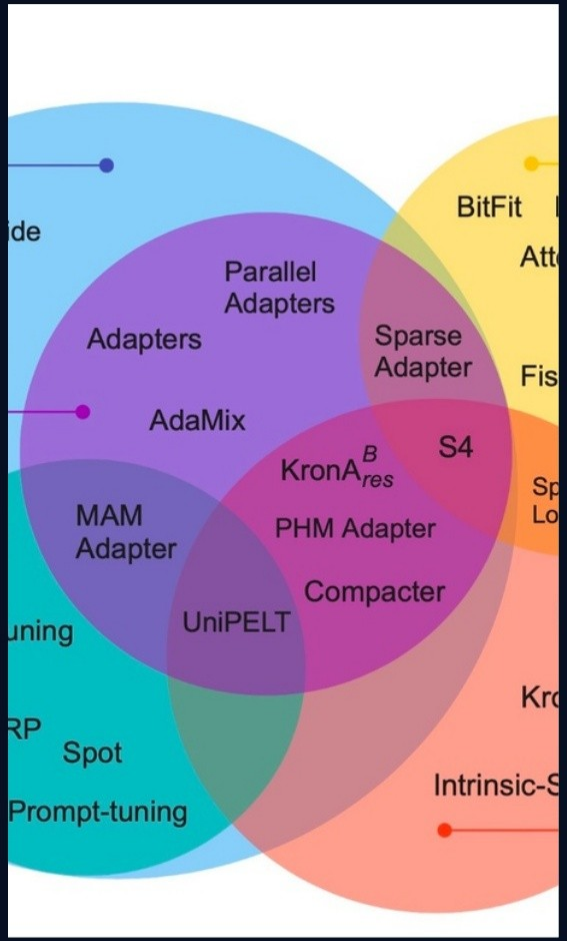
Crosslingual Story Planning and Generation with Large Language Models

Authors: Evgeniia Razumovskaia, Joshua Maynez, Annie Louis, Mirella Lapata, Shashi Narayan

This presentation showcases the latest research on crosslingual story planning and generation using large language models. By leveraging techniques like the three-act structure, the researchers explore ways to generate coherent narratives in multiple languages, going beyond the traditional focus on English.



Introduction

Automated story generation has focused mostly on English

Previous work on story generation has primarily targeted the English language, leaving a gap in exploring story generation across multiple languages.

Large Language Models (PLMs) can generate fluent text but struggle with coherence

While modern language models can produce fluent and natural-sounding text, they often lack the ability to maintain coherence and narrative structure in their generated stories.

This paper explores planning methods for crosslingual story generation

The paper investigates the use of story planning techniques to improve the coherence and quality of generated stories across multiple languages.

Focus: Given an English plan, generate stories in different languages

By addressing the challenges of story coherence and multilingual generation, this paper aims to advance the field of automated story generation and make it more accessible across diverse linguistic and cultural contexts.

High-Level Summary

- **New Task**

  Crosslingual story generation with planning, exploring methods to generate coherent stories in multiple languages.

- **Method**

  Leveraging structured planning frameworks like the three-act model to guide the narrative flow and coherence of generated stories.

- **Dataset**

  Utilizing the ASPEN dataset, which contains stories in 31 languages from the Global African Storybook Project, to support multilingual story generation.

- **Models**

  Adapting large language models like PaLM and mT5 to perform the task of crosslingual story generation, effectively handling multiple languages.

Methodology Overview

Entities:

Lists the characters, places, and objects that are involved in the story.

This is a minimal approach, providing only basic information about who or what is in the story without specifying the events.

Plot Outline:Provides a high-level summary of the story's key events.

It acts as a skeleton of the story, offering an overview of what happens but without much detail.

This approach is more structured than entities and provides a general direction for the story.

Three-Act Structure:Based on a classic narrative structure, dividing the story into three parts:

Setup: Introduces the characters and setting.

Conflict: Describes the central problem or challenge faced by the characters.

Resolution: Explains how the characters resolve the conflict and what happens in the end.

The study utilizes pre-trained language models like PaLM (from Google) and mT5, capable of generating text across multiple languages. These models are guided using "few-shot prompting," where they are given a few examples of plan-story pairs in English and then asked to generate stories in a target language. The input includes the English plan, target language identifier, and examples, allowing the models to understand how to perform the task effectively.

Results & Findings

Three-Act Structure

The three-act structure, consisting of setup, conflict, and resolution, led to the most coherent and engaging stories across languages.

Event Flow Management

The planning techniques helped the models better manage the flow of events, resulting in more coherent narratives in multiple languages.

Strong Performance

The adapted PaLM and mT5 models demonstrated strong performance in generating high-quality stories across a diverse set of languages.

Evaluation Metrics

The stories were evaluated using metrics such as vocabulary diversity, fluency, and human assessments to ensure the quality and coherence of the generated content.

The results and findings demonstrate the effectiveness of the planning-based approach in generating coherent and engaging stories across multiple languages.

Strengths of the Paper

- **Novel Task**
  Explores the novel problem of crosslingual story generation with planning, which has not been studied extensively before.
- **Structured Planning**
  Utilizes the well-established three-act structure to ensure coherent narrative flow and logical progression of events in the generated stories.
- **Comprehensive Dataset**
  Employs the ASPEN dataset, which contains stories in 31 diverse languages from the Global African Storybook Project, enabling broad-scale research in multilingual story generation.

Weaknesses of the Paper

Resource Intensive

The crosslingual story generation approach requires significant computational power for training and inference, limiting its accessibility.

Limited Language Scope

The paper focuses on generating stories in only three languages: Russian, Italian, and German, lacking broader crosslingual capability.

Dependency on English-Pretrained Data

The reliance on models pretrained on English data affects the fluency and coherence of stories generated in other languages.

While the paper presents an innovative approach to crosslingual story generation, the resource-intensive nature, limited language scope, and dependency on English-based models pose challenges for wider adoption and application.

Relevance to Interactive Fiction and Story Generation

Use of Large Language Models: The study demonstrates how large language models (like PaLM and mT5) can be employed for story generation. This aligns with the use of AI in creating rich, dynamic narratives in IF, where AI can handle narrative branches and adapt the story based on user interactions.

Story Structure: The course covers structuring narratives, such as the three-act model, which is central in the paper's methodology for creating coherent stories.

Few-Shot Prompting for Story Adaptation: The paper's method of using few-shot prompting to teach models how to generate stories based on a plan can be applied in interactive fiction to help AI models understand and extend storylines from brief inputs or user actions.

Potential Applications

Crosslingual Games

Adaptive narratives in multiple languages allow for engaging gameplay experiences that cater to global audiences.

Educational Tools

Leveraging language learning through entertaining stories can make the process more immersive and effective for students.

Interactive Storytelling

The structured planning techniques enable rich, dynamic narratives where users can shape the story through their choices.

The crosslingual story generation capabilities demonstrated in this work have a wide range of potential applications that can enhance user experiences and promote language learning across various domains.

Conclusion

- **Planning improves story coherence in multilingual settings.**

  The paper demonstrates that incorporating structured planning techniques, such as the three-act model, can enhance the coherence and narrative flow of stories generated in multiple languages.

- **Three-Act Structure is effective in guiding story generation.**

  The three-act structure, which includes the setup, conflict, and resolution stages, has proven to be a successful framework for generating engaging and cohesive stories across different languages.

- **Future Directions: Dynamic plan generation and broader language exploration.**

  The paper suggests that future work could explore methods for dynamically generating story plans based on user input or preferences, as well as expanding the language coverage beyond the three languages (Russian, Italian, and German) focused on in this study.