

A Story Recommendation System for SlugChat, a Kids Chatbot

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Abstract

I don't know what to write now. I will write it in the future.

I. INTRODUCTION

Childhood is the beginning of human life and plays an essential role. Some researches show that a better childhood may provide a better development in many fields like intelligence and verbal ability. A good method to achieve these is to chat more with kids especially in their first eight years[1, 2].

Most children could get a better vocabulary acquisition by listening to stories and explanations of target words from their parents[3]. However, not all parents have enough time to chat with their kids. For example, a report indicates that over 90% children complain their parents lack of time to chat with[4].

On the other hand, although some parents would not have enough time to speak to their kids, children spend increasing time on electronic devices[5]. These devices use many technologies to improve user experience, such as AI chatbot and recommendation system.

AI chatbot will provide children an excellent platform to practise verbal ability. Furthermore, recent reports show that kids under 6 have great interests in interacting with electronic devices despite limited literacy[6]. Nowadays, almost all IT giants develop their own chatbots like Amazon's Alexa which provides functions over Music & Radio, Game or Trivia, and Podcast[7]. Among these chatbots, there are also excellent products for kids,

such as Tyche, ibotn, BeanQ, and Apphome[8]. Recommendation systems have the effect of guiding users in a personalized way to interesting objects in a large space of possible options[9].

Unfortunately, most of current recommendation systems are designed for all ages. And there are no public available papers about recommendation systems for children entertainment, such as short stories for kids.

In this paper, we present a short story recommendation system for kids in Mandarin and implement this system on a new mobile application for kids, Slugchat, who has the ability to tell stories, sing children's songs, read poems, and answer some general questions for kids.

II. RELATED WORK

In order to build a story recommendation system and implement it on a chatbot, we need technologies of deferent areas. We introduce these technologies in this section.

i. Web Crawler

A web crawler sometimes called a spider, is a program which is able to browse the World Wide Web methodically and automatically[10]. Web crawler will collect massive data from various sources. This data will remain in an unstructured form. We call

them raw data and we need to derive useful values from them. Thus, web crawling is usually the first step of work.

ii. Word Segmentation

In languages such as English, words are separated by spaces. While there are no spaces between words in sentences in Mandarin. It is hard to analysis word token directly. In this project, we use a python library 'jieba' to do word segementation. We build a dictionary for kids.

iii. Word & Story Vector

Word2vec is a group of related models. Each unique word is assigned a vector in the space (or position). Words cotain familiar contexts are located nearby[11]. This model could be trained by giving a large corpus of text. In this project, we build a word2vec model for kids words in Mandarin. There are several ways to represent a story, such as Word Mover's Distance[12], Bag of Words and Paragraph Vector[13]. In this project, we use bag of words to represent stories. And in future work, we will use the states in RNN to present each story.

iv. Dialogue System

The developers of dialogue systems need to design conversation flows and rules to make systems work well[14]. Luckily, there are some wonderful platfroms, such as Dialogflow, wit.ai, IBM Watson, Microsoft LUIS and Rulai. They help developers build systems automatically and provide codeless interfaces for designing dialogue flows[15]. In this project, we use to Dialogflow. We build a set of intents, entities and contexts to implement our dialog and we use webhook to post responses from our servers.

v.

III. ACHITECHTURE

IV. IMPLEMENTETION

V. EXPERIMENTS

VI. FUTURE WORK

VII. METHODS

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1 This document is an example of the `thebibliography`, `knuthwebsite` environment using in bibliography management. Three items are cited: *The L^AT_EX Companion* book [?], the Einstein journal paper [?], and the Donald Knuth's website [?]. The L^AT_EX related items are [?, ?].

figure text 1

VIII. RESULTS

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Table 1: Example table

Name		
First name	Last Name	Grade
John	Doe	7.5
Richard	Miles	2

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$$e = mc^2 \quad (1)$$

IX. DISCUSSION

i. Subsection One

ii. Subsection Two

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