i) Research Plan

Research Title: 機械学習を用いた自然言語による知識ベースに対する

問合せ処理の高度化

Abstract:

Question answering systems over knowledge graphs automatically answer natural language questions using facts contained in a knowledge graph. Simple questions, which can be answered by the extraction of a single fact constitute a large part of questions asked on the web but still pose challenges to QA systems, especially when asked against a large knowledge resource. In this study we propose a neural network for answering simple questions in an end-to-end manner. The model should learn to rank subject, predicate pairs to enable the retrieval of relevant facts given a question.

Research Project outline

Background

Answering question over a knowledge base is to extract the answers from knowledge base directly. In order to do this task, we have two methods to use. One is semantic parsing, and the other is information extraction based. The scale and quality of the knowledge base has an important influence on question answering. Some researchers use DBPedia, Freebase, and Yago2, as the knowledge base in open domain question answering. There are some other works on this task, for example, Li et al, propose a multi-column model to rank the candidate answers, Yih et al. use convolutional neural network to answer the single relation question.

Objectives

Improve the natural language querying process over knowledge graphs

Work plan

Plan to Thesis

Research Plan

6 MONTHS

Mid-study evaluation 18 MONTHS

PhD Thesis 36 MONTHS

Preliminary Plan

START

ii) Projected Plan between now and Graduation

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Courses | 2018 | | 2019 | | | 2020 | |
|  | Spring | Autumn | Spring | Autumn | | Spring | Autumn |
| **1. Topic Description** |  |  |  |  | |  |  |
| Complete required credits |  |  |  |  | |  |  |
| Conference artical1 |  |  |  |  | |  |  |
| Journal artical1 |  |  |  |  | |  |  |
| **2. Making more surveys** |  |  |  |  | |  |  |
| Data collection |  |  |  |  | |  |  |
| Apply new algorithms |  |  |  |  | |  |  |
| Conference artical2 |  |  |  |  |  |  |  |
| Journal artical2 |  |  |  |  |  |  |  |
| **3. Preparing Thesis and defense** |  |  |  |  | |  |  |

iii) Plans and goals for the Future

* I intend to use my research and academic knowledge gained in contributing to the growth of my country especially in the academic industry since knowledge is the basis of economic growth and development.
* I also will continue to be a bridge between Japanese investors and Rwanda/African markets by keeping in contact and sharing information about investment opportunities.

iv) Research Conducted in the Past