

DISSERTATION INFORMATION

Title:

**ARGUMENTATION MODEL AND METHOD OF ANSWERING “WHY”
QUESTIONS BASED ON VIETNAMESE DISCOURSE PARSING**

Major: Computer Science

Major code: 62.48.01.01

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1. ABSTRACT

This dissertation proposes a novel approach to answering “WHY” questions which is a problem in question-answering research. In this approach, analogy-based argumentation in Vietnamese language representation is combined with Vietnamese discourse parsing to identify the causal relations in a text. Then, these causal relations are selected to create the answers to “WHY” questions. The highlight of this approach is the ability to answer “WHY” questions whose answers are multiple ideas with the best performance over existing approaches, including information retrieval and information extraction, causal relation classification, machine reading comprehension using deep neural network and formal inference with the first-order logic representation of text.

All research results of the dissertation are published in national conference proceedings, international conference proceedings and journals indexed by reputable publishers such as ISI, Scopus, IEEE, DBPL, etc.

2. MAIN CONTRIBUTIONS

The main contributions of this dissertation are:

- 1) Propose an RST-based Vietnamese sentential and inter-sentential level discourse parsing with the reason relations method.
- 2) Propose an analogy-based argumentation for the Vietnamese language representation method.
- 3) Propose an argumentation method of “WHY” question answering based on Vietnamese discourse parsing.

- 4) Propose an argumentation model of “WHY” question answering based on Vietnamese discourse parsing.
- 5) Building three datasets for experiments in this dissertation: 1) EDU-UNI dataset containing 9000 samples; 2) VnNewsNLI dataset containing 32000 samples; 3) VnYNews containing 203 samples.

3. FUTURE WORKS

The dissertation’s methods should be studied and improved further by:

- Building a text-level Vietnamese discourse corpus and a Vietnamese NLI corpus with a large amount and high quality.
- Study the combination of formal logic and natural language argumentation using deep neural networks for accuracy improvements and open-domain applications.
- Study the argument assessment method and the multi-document answer synthesis method.

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