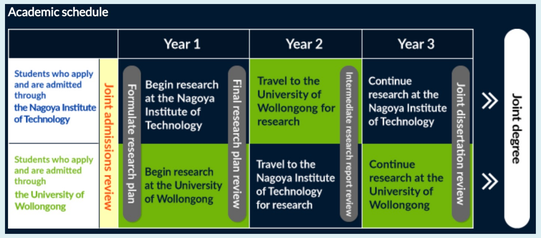
フロンティア研究院シンポジウム 2021年11月25日（名古屋工業大学）

博士後期課程紹介

○Gu Wen　名古屋工業大学 国際連携情報学専攻 博士後期課程 加藤昇平研究室

The Reason for Choosing PhD Course

The reason why I decided to proceed doctoral course is that Artificial Intelligence is an attractive research field which has made great progress recently and will bring more changes to our life in the future. I have the feeling that it is both fascinating and challenging to do research in this field. Also, in the doctoral course, students will have more chances to get international communications via international conferences, studying abroad and symposiums. These sorts of experiences will help us have a much better understanding of our researches and our lives. So I recommend master students to proceed your research in the doctoral course if you have the same interest in your research field and want to have a better improvement of yourself. The journey may be extremely difficult, but it is worth after you go through.



Introduction of University of Wollongong

The University of Wollongong (UOW) is a public university located in Wollongong, New South Wales, Australia. Established in 1951, it is made up of five departments: the Faculty of Business; the Faculty of Engineering and Information Sciences; the Faculty of Law, Humanities, and the Arts; the Faculty of Science, Medicine, and Health; and the Faculty of Social Sciences. It is a fully-fledged university that boasts a student body of nearly 33,000. It is also thoroughly global in character, with some 40% of its students participating in foreign study programs. The University of Wollongong ranks among the top 2% of universities in the world (it came in 193rd in the 2021/2022 QS World University Rankings, for example) and has gained an international reputation for quality.

Joint PhD Program

Message from the Program Director

The Joint Degree Doctoral Program in Informatics is a joint doctoral degree program between the Nagoya Institute of Technology and the University of Wollongong in Australia. Students who graduate from the program are awarded a joint degree from both institutions. The program is designed to turn out researchers who can create super smart societies, contribute to the fourth industrial revolution, and lead the world in pioneering new areas of study within the field of informatics. Our aim is to develop practical researchers and engineers who will serve as global leaders, paving the way for new projects at multinational companies, particularly IT firms developing a worldwide presence. Students in the program will be jointly taught by a world-class faculty team. Admission demands a test of English skills to make sure candidates have what it takes to engage in international research activities. Applicants are expected to have a level of English proficiency equivalent to 6.0 in each category of the IELTS, or an overall score of 6.5 or higher in the IELTS Academic module. Students will also reside on campus at both universities so that they can fully concentrate on their research and develop a real sense of what international research activities entail. The joint doctoral degree they are awarded will be further honed into innovative and practical research, thanks to our faculty team consisting of international leaders at both universities. This is an extremely rigorous program, but one that naturally comes with tremendous rewards. I invite interested students to join us in bringing a vital international perspective to their work in the lab.

Shohei Kato, Program Director Joint Degree Doctoral Program in Informatics

Research Introduction

Introduction

Online forum that gathers participants together to solve the common issues that they are facing is considered as a promising application of utilizing collective intelligence to solve complicated real-world problems. To facilitate the discussions in online forum to proceed smoothly and to build consensus efficiently, human facilitators are introduced into the system. With the increasing sophistication of online forum, human facilitators related problems such as human bias and restricted scale become critical. Therefore, it is critical to explore approaches to support human facilitators in conducting facilitation. However, most of the existing facilitation support techniques only support pre-defined facilitation tasks that could be defined by static rules. In this research, we aim to explore potential solutions for supporting the human facilitators to conduct facilitation in online forum. As the first step, we have proposed a case-based reasoning (CBR)-based framework that targets support facilitation by utilizing past successful facilitation experience. Currently, our work is focusing on the specific facilitation task of detecting influential user in the online forum. In the future work, we are planning to propose approaches of solving other specific facilitation tasks such as measuring the level of agreement and encouraging participants to reach a consensus.

Motivation

Support Online Discussion Facilitation

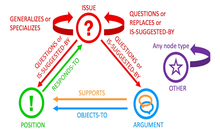
- Facilitation in online discussion
  - Complicated problem that involves a lot of tasks
  - Facilitation tasks are not well and clearly defined
- Human based online discussion facilitation
  - Human bias issues
  - Time issues
  - Scale issues
- Computational online discussion facilitation support
  - Explore potential solution for supporting human facilitation
    - Problem representation
    - Solution investigation
    - Benchmark performance
    - Dataset building
    - Evaluation criteria

D-Agree

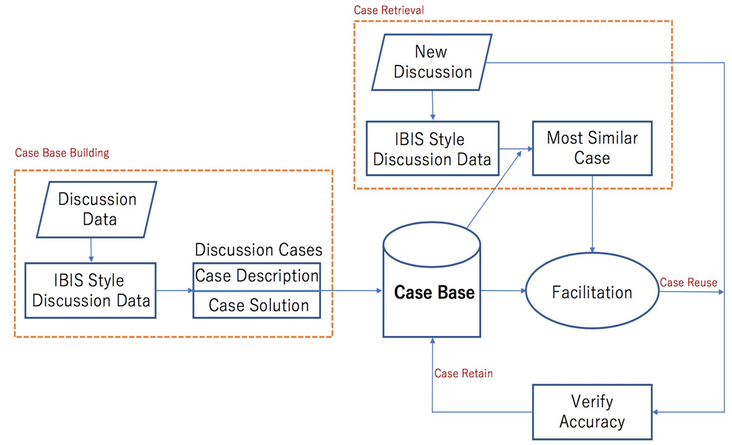
Online Discussion Platform[1]

Facilitation Support Agent

- Issue-based information system(IBIS)[2]
  - Argumentation approach to clarify complex problems that involve stakeholders
  - Adopted to model the online discussion
- IBIS elements:
  - Issue: questions that stakeholders aim to solve
  - Position: possible answers/ideas to the issues
  - Arguments: opinions to the related positions



Framework



Case-based Reasoning[3]

- Provide an effective reasoning paradigm for solving new problems by adopting similar solutions that have been proposed for similar problems in the past
- Main focus: case base building; case retrieve; case reuse; case verification

[1] https://d-agree.com/
[2] Kunz, Werner, and Horst WJ Rittel. *Issues as elements of information systems*. Vol. 131. Berkeley, California: Institute of Urban and Regional Development, University of California, 1970.
[3] A. Aamodt and E. Plaza, Case-based reasoning: Foundational issues, methodological variations, and system approaches, AI Communications, Vol. 7 No. i, 1994