

ROCLING 2023

The 35th

ROCLING 2023

第三十五屆自然語言與語音處理研討會

October 20-21, 2023, Taipei City, Taiwan, R.O.C.

Proceedings of the Thirty-fifth Conference on Computational
Linguistics and Speech Processing

**ROCLING 2023: The 35th Conference on
Computational Linguistics and Speech Processing**

第三十五屆自然語言與語音處理研討會

October 20-21, 2023

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Taipei City, Taiwan, R.O.C.

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Messages from Conference Chairs

We extend a warm welcome to all attendees on behalf of the Conference Chairs to the 35th Conference on Computational Linguistics and Speech Processing (ROCLING 2023), scheduled to take place in Taipei, Taiwan, from October 20th to 21st, 2023. Hosted by Soochow University (SCU) and the Association for Computational Linguistics and Chinese Language Processing (ACLCLP), ROCLING 2023 is a significant event supported by the National Science and Technology Council (NSTC).

This conference holds special importance in a time marked by the remarkable growth of our field, with Natural Language Processing (NLP) and Speech Processing gaining widespread interest in both research and industry. The barriers to entry have significantly lowered, adding to the excitement of our community.

The realization of this conference owes much to the dedication and support of the Organizing Committee. Our heartfelt gratitude goes to the Program Chairs, Prof. Hen-Hsen Huang and Prof. Yu Tsao, the Special Session Chair, Prof. Chia-Hui Chang, AI Tutorial Chair, Prof. Wei-Yun Ma, and the Shared Task Chairs, Prof. Lung-Hao Lee and Prof. Yuan-Fu Liao. Their meticulous coordination of the review process has ensured the presentation of high-quality research papers and informative talks. We also thank Prof. Hou-Chiang Tseng for her invaluable assistance in the publication of conference proceedings, soon to be available in the ACL Anthology.

Our deep appreciation goes to our sponsors for their continuous and generous support. We are also grateful to the chairs of past conferences for their patient guidance, sharing their expertise. We extend our thanks to the keynote speakers, reviewers, tutorial instructors, authors, and presenters whose contributions enrich this conference. Special thanks to all authors who submitted their work for review; your efforts make this event vibrant and our community robust.

Lastly, we want to express our gratitude to you, our esteemed participants, for your commitment to attending the conference from October 20th to 21st, 2023. We hope you to immerse yourself in the proceedings, connect with fellow attendees.

Warm regards and enjoy the ROCLING 2023 conference!

Jheng-Long Wu, Soochow University
Ming-Hsiang Su, Soochow University
ROCLING 2023 Conference Chairs

Messages from Program Chairs

Welcome to ROCLING 2023!

As the program chairs, it is our honor and privilege to extend a heartfelt greeting to each and every one of you. This year has been remarkably special for all of us associated with the conference, with each paper submission and shared task bringing its own set of challenges and insights. We are delighted by the diversity and quality of the works that have been presented.

We have received a plethora of outstanding submissions, out of which we've selected 29 exceptional oral papers and 9 distinguished posters, ensuring a comprehensive blend of innovation and foundational research. We would like to express our immense gratitude to the authors, reviewers, and the entire program committee. Their hard work, dedication, and commitment have elevated the standards of our conference.

In addition to the core paper presentations, this year, ROCLING has taken a leap in collaborating for two shared tasks, MultiNER-Health and Formosa Speech Recognition Challenge 2023, showcasing the depth and breadth of our community.

As we come together, whether physically or virtually, we encourage all participants to engage deeply, discuss fervently, and collaborate openly. ROCLING has always been a melting pot of ideas, innovations, and inspirations, and this year is no exception. Wishing you all an insightful and memorable conference experience!

Warm regards,

Yu Tsao, Academia Sinica
Hen-Hsen Huang, Academia Sinica
ROCLING 2023 Program Chairs

NLP Keynote by Doctor Nancy F. Chen



SeaEval for Multilingual Foundation Models: From Cross-Lingual Alignment to Cultural Reasoning

Speaker: Doctor Nancy F. Chen

Time: Day 1 (Friday), 20 October 2023, 09:00 - 10:00

Biography

Nancy F. Chen is an A*STAR fellow, senior principal scientist, principal investigator, and group leader at I2R (Institute for Infocomm Research) and Principal Investigator at CFAR (Centre for Frontier AI Research). Her group works on generative AI in speech, language, and conversational technology. Her research has been applied to education, defense, healthcare, and media/journalism. Dr. Chen has published 100+ papers and supervised 100+ students/staff. She has won awards from IEEE, Microsoft, NIH, P&G, UNESCO, L'Oréal, SIGDIAL, APSIPA, MICCAI. She is an IEEE SPS Distinguished Lecturer (2023-2024), Program Chair of ICLR 2023, Board Member of ISCA (2021-2025), and Singapore 100 Women in Tech (2021). Technology from her team has led to commercial spin-offs and government deployment. Prior to A*STAR, she worked at MIT Lincoln Lab while doing a PhD at MIT and Harvard. For more info: <http://alum.mit.edu/www/nancychen>.

Abstract

We present SeaEval, a benchmark for multilingual foundation models. In addition to characterizing how these models understand and reason with natural language, we also investigate how well they comprehend cultural practices, nuances, and values. Alongside standard accuracy metrics, we examine the brittleness of foundation models in the dimensions

of semantics and multilinguality. Our investigations encompasses both open-source and proprietary models, shedding light on their behavior in classic NLP tasks, reasoning, and cultural contexts. Notably, (1) Most models respond inconsistently to paraphrased instructions. (2) Exposure bias pervades, evident in both standard NLP tasks and cultural understanding. (3) For questions rooted in factual, scientific, or common sense knowledge, consistent responses are expected across multilingual queries that are semantically equivalent. Yet, many models intriguingly demonstrate inconsistent performance on such queries. (4) Models trained multilingually still lack "balanced multilingual" capabilities. Our endeavors underscore the need for more generalizable semantic representations and enhanced multilingual contextualization. SeaEval can serve as a launchpad for in-depth investigations for multilingual and multicultural evaluations.

Speech Keynote by Peng-Jen Chen



Building Speech-to-Speech Translation System for English-Hokkien

Speaker: Peng-Jen Chen

Time: Day 2 (Saturday), 21 October 2023, 09:00 - 10:00

Biography

Peng-Jen Chen is a research engineer at Meta AI. He received a B.S. degree in 2007 and an M.S. degree in 2009 in Computer Science and Information Engineering, at National Taiwan University. He joined Meta as a machine learning engineer in 2012 and joined FAIR as a research engineer in 2018. His key research interests include low-resource machine translation, speech-to-speech translation, speech-text joint pre-training.

Abstract

Speech is the primary mode of communication for people who speak languages that lack a standard writing system. With nearly 3000 such unwritten languages in existence, developing speech-to-speech translation technology is critical in overcoming language barriers for these communities. In this talk, we will explore the challenges involved in building a speech-to-speech translation system for English-Taiwanese Hokkien, a real-world language that lacks a widely used standard writing system. We will present our approaches ranging from training data collection and modeling choices, to the evaluation of the developed models.

SPECIAL SESSION 1: Techniques for Large Language Models

Time: Day 1 (Friday), 20 October 2023, 10:20 - 12:20



我們與語音版 ChatGPT 的距離

Speaker: Professor Hung-Yi Lee



Towards Human-Like Conversational AI

Speaker: Professor Yun-Nung Chen

SPECIAL SESSION 2: Crafting Human-Centered Chatbots: Bridging the Gaps

Time: Day 2 (Saturday), 21 October 2023, 13:30 - 15:00



Chair Professor Chia-Hui Chang

Panelists



Chair Professor

Jen-Tzung Chien



Research Fellow

Lun-Wei Ku



Chair Professor

Chen-Chung Liu



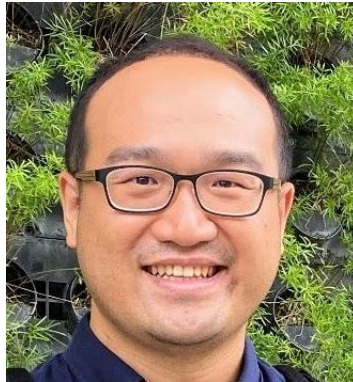
Professor

Daw-Wei Wang

- **Jen-Tzung Chien** : 心理諮商對話系統的開發
- **Lun-Wei Ku** : Virtual Storytelling 系統的開發
- **Chen-Chung Liu** : 教育類型對話系統的開發
- **Daw-Wei Wang** : 從物理課的虛擬助教到人社領域的指令工程 : AIGC應用於清華大學的嘗試

AI Tutorial I: Demystifying Graph Neural Networks: Essentials, Applications, and Trends

Time: Day 2 (Saturday), 21 October 2023, 10:20 - 12:20



Professor Cheng-Te Li

AI Tutorial II: Chaining Language and Knowledge Resources with LLM(s)

Time: Day 2 (Saturday), 21 October 2023, 15:20 - 17:20



Professor Shu-Kai Hsie

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