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RYO KAMOI

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https://ryokamoi.github.io/

RESEARCH INTERESTS

My research interests lie in the broad areas of natural language processing, including trustworthy NLP systems, detecting and mitigating errors in responses from LLMs, evaluating LLMs, reasoning capabilities of LLMs, fact verification, text summarization, and vision-language models.

EDUCATION

Pennsylvania State University - Ph.D. Student in Computer Science — Aug 2023 - (May 2028)
Advisor: Dr. Rui Zhang

University of Texas at Austin - Master of Science in Computer Science — Aug 2020 - Dec 2022
Advisor: Dr. Greg Durrett, Mentor: Tanya Goyal

Keio University, Japan - Bachelor of Engineering in Statistics — Apr 2016 - Mar 2020
Advisor: Dr. Kei Kobayashi, Top student in the Department of Mathematics (Keio Engineering Foundation Award)

RESEARCH INTERNSHIPS

Amazon, Cambridge, UK - Applied Scientist Intern — Jul - Dec 2021

- Developed an interpretable answer quality evaluation framework for responses from chatbots.

SELECTED PAPERS

https://scholar.google.com/citations?user=4OWTLKAAAAAJ

Ryo Kamoi, Yusen Zhang, Nan Zhang, Jiawei Han, Rui Zhang. 2024. When Can LLMs Actually Correct Their Own Mistakes? A Critical Survey of Self-Correction of LLMs. *TACL (to appear)*.

Ryo Kamoi, Sarkar Snigdha Sarathi Das, Renze Lou, Jihyun Janice Ahn, Yilun Zhao, Xiaoxin Lu, Nan Zhang, Yusen Zhang, Ranran Haoran Zhang, Sujeeth Reddy Vummanthala, Salika Dave, Shaobo Qin, Arman Cohan, Wenpeng Yin, Rui Zhang. 2024. Evaluating LLMs at Detecting Errors in LLM Responses. *In COLM*.

Ryo Kamoi, Tanya Goyal, Juan Diego Rodriguez, and Greg Durrett. 2023. WiCE: Real-world Entailment for Claims in Wikipedia. *In EMNLP (main)*.

Ryo Kamoi, Tanya Goyal, Juan Diego Rodriguez, and Greg Durrett. 2023. Shortcomings of Question Answering Based Factuality Frameworks for Error Localization. *In EACL (main)*.

Ryo Kamoi and Kei Kobayashi. 2020. Why is the Mahalanobis Distance Effective for Anomaly Detection? *arXiv preprint arXiv:2003.00402*.

SERVICES

Reviewer - ARR (2023 - present), COLM (2024), AISTATS (2021), BMVC (2020)

Volunteer - EMNLP 2024

Teaching Assistant, Penn State University

CMPSC 442: Artificial Intelligence — Spring 2024

CMPSC 448: Machine Learning and AI — Fall 2023, Fall 2024

HONORS AND AWARDS

Keio University Global Fellowship - Scholarships for graduate study at UT Austin 2020

Keio Engineering Foundation Award - Graduation with highest honors (First place in the Dept. of Mathematics) 2020

Japan Student Services Organization (JASSO) Exchange Student Scholarship 2018

INVITED TALKS

Matuo-Iwasawa Lab at the University of Tokyo 2024

Lecture about Self-Correction of LLMs

NLP Colloquium `https://nlp-colloquium-jp.github.io/` 2023

Talk about my research in detecting mistakes in LLM responses

Nagoya NLP Seminar at Nagoya University `https://sites.google.com/site/nagoyanlpseminar/` 2023

Talk about my research in fact-verification and textual entailment by language models

SKILLS

Programming Languages: Python

Natural Languages: English, Japanese

OTHER PAPERS

Jihyun Janice Ahn, **Ryo Kamoi**, Lu Cheng, Rui Zhang, Wenpeng Yin. 2024. Direct-Inverse Prompting: Analyzing LLMs' Discriminative Capacity in Self-Improving Generation. *arXiv preprint arXiv:2407.11017*.

Yilun Zhao, Yitao Long, Hongjun Liu, Linyong Nan, Lyuhao Chen, **Ryo Kamoi**, Yixin Liu, Xiangru Tang, Rui Zhang, Arman Cohan. 2023. DocMath-Eval: Evaluating Numerical Reasoning Capabilities of LLMs in Understanding Long Documents with Tabular Data**.** *In ACL 2024.*

Yusen Zhang, Nan Zhang, Yixin Liu, Alexander Fabbri, Junru Liu, **Ryo Kamoi**, Xiaoxin Lu, Caiming Xiong, Jieyu Zhao, Dragomir Radev, Kathleen McKeown, Rui Zhang. 2024. Fair Abstractive Summarization of Diverse Perspectives. *In NAACL 2024.*

Ryo Kamoi and Kaname Tomite. 2021. Efficient Unknown Object Detection with Discrepancy Networks for Semantic Segmentation. *In the NeurIPS 2021 Workshop on Machine Learning for Autonomous Driving.*

Ryo Kamoi and Kei Kobayashi. 2020. Out-of-Distribution Detection with Likelihoods Assigned by Deep Generative Models Using Multimodal Prior Distributions. *In The AAAI's Workshop on Artificial Intelligence Safety*.

Ryo Kamoi, Kei Kobayashi. 2019. Likelihood Assignment for Out-of-Distribution Inputs in Deep Generative Models is Sensitive to Prior Distribution Choice. *arXiv preprint arXiv:1911.06515.*