

**RYO KAMOI**

ryokamoi@psu.edu

<https://ryokamoi.github.io/>**Research Interests**

---

- Reasoning capabilities of LLMs, specifically about self-refinement and self-improvement [TAACL'24, COLM'24], reasoning models, reward modeling, reasoning verifiers [arXiv'25], and textual entailment [EMNLP'23, EACL'23]
- Research automation and assistance by LLMs [ICLR'25]
- Vision-Language Models [COLM'25, ICCV'25]

**Education**

---

- Pennsylvania State University** - Ph.D. Candidate in Computer Science Aug 2023 -  
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

**Research Internships**

---

- Microsoft**, Redmond, WA – Research Intern at the Office of Applied Research May - Dec 2025  
- Research in simulating human conversation for evaluating AI chatbots
- Amazon**, Cambridge, UK – Applied Scientist Intern at the Alexa Team 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, Sarkar Snigdha Sarathi Das, Ranran Haoran Zhang, Wenpeng Yin, Rui Zhang. 2025. [Efficient PRM Training Data Synthesis via Formal Verification](#). *arXiv preprint arXiv:2505.15960*.
- Ryo Kamoi**, Yusen Zhang, Sarkar Snigdha Sarathi Das, Ranran Haoran Zhang, Rui Zhang. 2025. [VisOnlyQA: Large Vision Language Models Still Struggle with Visual Perception of Geometric Information](#). *In COLM*.
- 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*.
- 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)*.

**Media Mentions**

---

[Self-Correction in Large Language Models](#). **Communications of the ACM**.

Feb 26, 2025

## Recognition for Research Papers

---

Best Paper Award at the 2nd AI4Research workshop @ AAAI 2025 2025

## Honors and Awards

---

Keio University Global Fellowship - Scholarships for my 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

---

AiTech Seminar at Okazaki Laboratory, Institute of Science Tokyo - Research talk 2025

Michinoku Communication Science Seminar (MiCS) at Tohoku University - Research talk 2025

AI for Math Minisymposium at MSIAM-NNP - Talk about my research on Process Reward Models 2025

Matuo-Iwasawa Lab at the University of Tokyo - Talk about Self-Correction of LLMs 2024

NLP Colloquium JP - Talk about my research on detecting mistakes in LLM responses 2023

Nagoya NLP Seminar at Nagoya University - Talk about my research on fact verification and textual entailment 2023

## Academic Services

---

**Reviewer** (\*outstanding reviewer)

ARR (2023-present), COLM 2024-2025, ICLR 2026, NeurIPS 2025, ICCV 2025, CVPR 2025, EMNLP 2024\*, AISTATS 2021, BMVC 2020

**Conferences and Workshops** - MASC-SLL 2025 (organizer), EMNLP 2024 (volunteer)

NLP Colloquium JP - Organizing a biweekly online talk event about NLP and CL 2024 -

## Educational Experience

---

**Mentorship**

Avitej Iyer (M.S. student at Penn State University) 2025

**Teaching Assistant, Penn State University**

CMPSC 442: Artificial Intelligence Spring 2024

CMPSC 448: Machine Learning and AI Fall 2023, Fall 2024, Fall 2025

## Skills

---

**Programming Languages:** Python

**Natural Languages:** English, Japanese

## Other Papers

---

### First-Author Papers

**Ryo Kamoi**, Ameya Godbole, Longqi Yang, Rui Zhang, Mengting Wan, Pei Zhou. 2026. [Evaluating LLM-Simulated Conversations in Modeling Inconsistent and Uncollaborative Behaviors in Human Social Interaction](#). *arXiv preprint arXiv:2505.15960*.

- 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. Why is the Mahalanobis Distance Effective for Anomaly Detection? *arXiv preprint arXiv:2003.00402*.
- 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*.

### **Co-Authored Papers**

- Yusen Zhang, Wenliang Zheng, Aashrith Madasu, Peng Shi, **Ryo Kamoi**, Hao Zhou, Zhuoyang Zou, Shu Zhao, Sarkar Snigdha Sarathi Das, Vipul Gupta, Xiaoxin Lu, Nan Zhang, Ranran Haoran Zhang, Avitej Iyer, Renze Lou, Wenpeng Yin, Rui Zhang. 2025. HRScene: How Far Are VLMs from Effective High-Resolution Image Understanding? *In ICCV 2025*.
- Renze Lou, Hanzi Xu, Sijia Wang, Jiangshu Du, **Ryo Kamoi**, Xiaoxin Lu, Jian Xie, Yuxuan Sun, Yusen Zhang, Jihyun Janice Ahn, Hongchao Fang, Zhuoyang Zou, Wenchao Ma, Xi Li, Kai Zhang, Congying Xia, Lifu Huang, Wenpeng Yin. 2025. AAAR-1.0: Assessing AI's Potential to Assist Research. *In ICML 2025, Best Paper Award at the 2nd AI4Research workshop @ AAAI 2025*.
- Sarkar Snigdha Sarathi Das, **Ryo Kamoi**, Bo Pang, Yusen Zhang, Caiming Xiong, Rui Zhang. 2025. GReaTer: Gradients over Reasoning Makes Smaller Language Models Strong Prompt Optimizers. *In ICLR 2025*.
- 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*.