Jaepill Choi

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👤 Research Interest

Natural Language Processing, Large Language Models, Hallucination, Reasoning

🎓 Education

Seoul National University, Seoul, South Korea   *September 2022 - August 2024*
M.S., Graduate School of Data Science
- Learning and Adaptation Algorithms Lab (Advisor: Prof. Taesup Kim)
- Relevant Coursework:
  - Machine Learning and Deep Learning for Data Science 1, 2
  - Computing For Data Science 1, 2
  - Conversational AI
  - AI Model Consistency and Large Language Models

Yonsei University, Seoul, South Korea   *March 2016 - August 2022*
B.S., Department of Mechanical Engineering
- 2-years absence to fulfill military service (January 2017 - October 2018)

📧 Publications

- **Jaepill Choi***, Kyubyung Chae*, Jiwoo Song, Yohan Jo, Taesup Kim. "Model-based Preference Optimization in Abstractive Summarization without Human Feedback", In *Proceedings of the 2024 Conference on Empirical Methods in Natural Language Processing:* EMNLP 2024.

- Kyubyung Chae*, **Jaepill Choi***, Yohan Jo, Taesup Kim. "Mitigating Hallucination in Abstractive Summarization with Domain-Conditional Mutual Information", In *Findings of the Association for Computational Linguistics:* NAACL 2024.

- **Jaepill Choi**, Kyubyung Chae, Jiwoo Song, Taesup Kim. "Fine-tuning Language Models to Alleviate Hallucinations in Abstractive Summarization", *Korean Institute of Information Scientists and Engineers:* KIISE, 2024.

*Equal Contribution

✏️ Research Experience

Learning and Adaptation Algorithms Lab   *December 2022 - August 2024*
Advisor: Prof. Taesup Kim
Graduate Research Assistant
- **Model-based Preference Optimization (MPO)**
  - Proposed MPO as an alternative to DPO method to enhance LLM factuality
  - Created preference dataset using diverse LLM decoding strategies
  - Achieved significant improvements in summary quality without human feedback

- **Domain-Conditional Pointwise Mutual Information (PMI_{DC})**
  - Introduced PMI_{DC} as an alternative scoring strategy to reduce hallucination
  - Integrated custom decoding strategy into HuggingFace transformers module
  - Improved summary quality without additional training

- **Cross-model Transfer through Multi-Task Learning**
  - Implemented prompt-tuning techniques for effective cross-model transfer
  - Trained soft prompt projector using multi-task learning to enhance model compatibility

Multi-dimensional Insight Lab   *December 2021 - March 2022*
Advisor: Prof. Sanghoon Lee
Undergraduate Research Intern
- **3D Avatar Modeling**
  - Conducted research study focused on computer vision and 3D avatar development

⊞ Work Experience

LG Electronics Language Intelligence, Seoul, South Korea   *October 2024 - November 2024*
AI Software Engineer Intern
- Fine-tuned LLaMA for Query Regenerator
- Collected Korean corpus for the webOS25 AI ART service

Samsung Biologics EPCV Center, Incheon, South Korea   *July 2021 - August 2021*
Undergraduate Intern
- Conducted analysis and management of the HVAC system for Plant 4 construction

Hyundai Motors Headquarter, Seoul, South Korea   *November 2019 - December 2019*
Human Resources Assistant
- Provided assistance with recruiting tasks

✲ Awards and Honors

Highest Honor, Yonsei University	*Fall 2022*
Honor, Yonsei University	*Fall 2020, Fall 2021, Spring 2022*
3rd Prize, Creative Design Camp, Hongik University	*December 2021*
Certificate of Achievement, 2-2 AHB, 2ID, US Army	*October 2018*

👥 Leadership Experience

Yonsei Social Club   *September 2021 - February 2022*
16th Student President
- Organized, created and led club activities for social gatherings

Military Service for Republic of Korea   *January 2017 - October 2018*
Senior KATUSA, 2ID
- ROKA Staff Office member at 2-2 Assault Helicopter Battalion, 2ID

🖵 Teaching Experience

Teaching Assistant, Seoul National University   *September 2023 - December 2023*
TA for Machine Learning and Deep Learning
- Developed self-supervised learning assignment using CIFAR-10
- Provided office hours to support and answer questions related to the course

Samsung Future Maker Camp   *December 2018*
Coding Instructor
- Taught students autonomous driving coding for model cars using SCRATCH

♥ Volunteer Experience

Elderly Education Volunteer   *March 2023 - June 2023*
Technology Educator
- Provided technology education to elderly individuals at Gwanak social welfare center

2018 Pyeongchang Olympic Volunteer   *January 2018 - March 2018*
Olympic VIP Translator
- Translated for foreign VIP and visitors from all around the world
- Escorted IOC president, Thomas Bach

Yonsei-Incheon Teaching Volunteer   *March 2016 - June 2016*
Student Mentor
- Assisted students with their high school curriculum at Dong-Incheon high school

⚙ Skills

Languages	Korean, English
Programming	Python, C++, C, SQL
Tools	HuggingFace, PyTorch, TensorFlow, Numpy, Pandas, Matplotlib