

# 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*

- GPA: 4.02/4.30 (3.88/4.0)
- 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*

- GPA: 3.90/4.30 (3.76/4.0)
- 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

<b>LG Electronics Language Intelligence</b> , Seoul, South Korea <i>AI Software Engineer Intern</i> <ul style="list-style-type: none"><li>• Fine-tuned LLaMA for Query Regenerator</li><li>• Collected Korean corpus for the webOS25 AI ART service</li></ul>	<i>October 2024 - November 2024</i>
<b>Samsung Biologics EPCV Center</b> , Incheon, South Korea <i>Undergraduate Intern</i> <ul style="list-style-type: none"><li>• Conducted analysis and management of the HVAC system for Plant 4 construction</li></ul>	<i>July 2021 - August 2021</i>
<b>Hyundai Motors Headquarter</b> , Seoul, South Korea <i>Human Resources Assistant</i> <ul style="list-style-type: none"><li>• Provided assistance with recruiting tasks</li></ul>	<i>November 2019 - December 2019</i>

## Awards and Honors

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

## Leadership Experience

<b>Yonsei Social Club</b> <i>16th Student President</i> <ul style="list-style-type: none"><li>• Organized, created and led club activities for social gatherings</li></ul>	<i>September 2021 - February 2022</i>
<b>Military Service for Republic of Korea</b> <i>Senior KATUSA, 2ID</i> <ul style="list-style-type: none"><li>• ROKA Staff Office member at 2-2 Assault Helicopter Battalion, 2ID</li></ul>	<i>January 2017 - October 2018</i>

## Teaching Experience

<b>Teaching Assistant</b> , Seoul National University <i>TA for Machine Learning and Deep Learning</i> <ul style="list-style-type: none"><li>• Developed self-supervised learning assignment using CIFAR-10</li><li>• Provided office hours to support and answer questions related to the course</li></ul>	<i>September 2023 - December 2023</i>
<b>Samsung Future Maker Camp</b> <i>Coding Instructor</i> <ul style="list-style-type: none"><li>• Taught students autonomous driving coding for model cars using SCRATCH</li></ul>	<i>December 2018</i>

## Volunteer Experience

<b>Elderly Education Volunteer</b> <i>Technology Educator</i> <ul style="list-style-type: none"><li>• Provided technology education to elderly individuals at Gwanak social welfare center</li></ul>	<i>March 2023 - June 2023</i>
<b>2018 Pyeongchang Olympic Volunteer</b> <i>Olympic VIP Translator</i> <ul style="list-style-type: none"><li>• Translated for foreign VIP and visitors from all around the world</li><li>• Escorted IOC president, Thomas Bach</li></ul>	<i>January 2018 - March 2018</i>
<b>Yonsei-Incheon Teaching Volunteer</b> <i>Student Mentor</i> <ul style="list-style-type: none"><li>• Assisted students with their high school curriculum at Dong-Incheon high school</li></ul>	<i>March 2016 - June 2016</i>

## Skills

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