

Taeyoun Kim

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Keywords

Reasoning, RL, Multi-Agent LLMs, Open Domains, Self-Improvement, Safety & Alignment, OOD Robustness

Education

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|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|
| MS | Carnegie Mellon University Machine Learning | Pittsburgh, PA
Aug. 2023 - Dec. 2024 |
| | <ul style="list-style-type: none">• GPA: 4.04/4.3• Funded by the Kwanjeong Foundation | |
| BS | Yonsei University Electrical & Electronic Engineering | Seoul, South Korea
March 2016 - Feb. 2022 |
| | <ul style="list-style-type: none">• GPA: 3.92/4.0 (4.10/4.3)• High Honors: Top 3%• Thesis: Impact of Different Joints on Creating a 3D Hand Mesh• Funded through the National Science and Technology Scholarship (South Korean Government) | |

Publications

Reasoning as an Adaptive Defense for Safety

Taeyoun Kim, Fahim Tajwar, Aditi Raghunathan, Aviral Kumar

NeurIPS 2025 ([arXiv](#))

Mitigating Bias in RAG: Controlling the Embedder

Taeyoun Kim, Jacob Springer, Aditi Raghunathan, Maarten Sap

ACL Findings 2025 ([arXiv](#))

Testing the Limits of Jailbreaking Defenses with the Purple Problem

Taeyoun Kim*, Suhas Kotha*, Aditi Raghunathan

NeurIPS 2024 Safe GenAI ([arXiv](#))

Predicting the Performance of Foundation Models via Agreement-on-the-Line

Rahul Saxena*, **Taeyoun Kim***, Aman Mehra*, Christina Baek, Zico Kolter, Aditi Raghunathan

NeurIPS 2024 ([arXiv](#))

The Application of Local Sub-voxel Shifting on Multi-echo GRE-based Myelin Water Imaging

Taeyoun Kim, Muyul Park, Jaeuk Yi, Dong-Hyun Kim

ICMRI 2021 (Oral)

Research Experience

CMU, Research Assistant

Aviral Kumar

Pittsburgh, PA

Jan. 2025 - Current

- **Reasoning/ML** Building a process reward to understand the relationship between reasoning and outcome answers. Formulating a Stackelberg equilibrium between the reasoning and answer to investigate whether exploration in the opposite direction can increase answer utility.
- **Reasoning/ML** Created an RL training recipe for LLM safety called TARS that mitigates reasoning degeneration and over-refusal by training models to adaptively reason shorter on clear-cut harmful prompts and longer on ambiguous prompts. Outperformed larger open-weight models (e.g., Llama) and SOTA defenses (e.g., circuit breakers and deliberative alignment).

CMU, Research Assistant

Aditi Raghunathan

Pittsburgh, PA

June 2023 - Dec. 2024

- **Jailbreaking/Safety/ML** Constructed **The Purple Problem** to test if jailbreaking

defenses can prevent the generation of a single word: “purple”. Broke existing defenses such as DPP on Advbench harmful behaviors to 1.7% DSR.

- **OOD Robustness/ML** Estimated out-of-distribution performance in foundation models by using Agreement-on-the-Line (AGL). Discovered that random initialization in the last layer is key to preserving diversity for AGL to hold. Reduced the error of prediction to 1.64% on SQuAD-Shifts (SOTA: 2.8%), allowing robust prediction of models before deployment.
- **RAG/Bias/ML** (collab. Maarten Sap) Found that representational bias in RAG is best mitigated by reverse-biasing the embedder. Revealed that light fine-tuning a small 109M embedder through PEFT or WiSE-FT can overcome bias in Llama 3.1 405B Instruct. Empirically estimated the bias sensitivity of LLMs (Llama, Gemma, Mistral) and found that LLMs have different sensitivity to political bias.

Yonsei Esports (YES) Lab, Research Assistant
Byungjoo Lee

Seoul, South Korea
July 2022 - June 2023

- **HCI/RL** Modeled human point-and-click behavior through N-step TD SAC to understand human motor and visual control with the BUMP model. Implemented human foveal vision as inputs to vision models.

Teaching Experience

TA (PhD) Advanced Introduction to Machine Learning (10-715) Fall 2024

- Led recitation on convex optimization (bounds for GD and SGD, duality, Slater’s conditions, KKT conditions), held office hours, made exams.

Awards/Fellowships

Kwanjeong Foundation Fellowship	2023, 2024
National Science and Technology Scholarship	2018, 2021
Yonsei Veritas Scholarship	2016, 2017
High Honors	2016, 2017, 2018, 2021
Honors	2016, 2018, 2021
1st Place, Yonsei EE Autonomous Race Competition	2017

Involvement/Service

Reviewer ICLR 2026

President, CMU KGSA Soccer

- Organized soccer games as part of the Korean Graduate Students Association.

Pittsburgh, PA
Oct. 2023 - Dec. 2024

Member, Yonsei Tea

- Educated, learned, and spread Eastern tea drinking culture.

Seoul, South Korea
March 2023 - July 2023

Sergeant, Reconnaissance, Republic of Korea Army

- Military service near the De-Militarized Zone (DMZ).

Gangwon-do, South Korea
July 2019 - Jan. 2021

President/Member, Yonsei AFKN Listener’s Club (ALC)

- Taught international students Korean. Created study sessions and games for language exchange. Gave tours around Seoul.

Seoul, South Korea
March 2016 - June 2019

Language

GRE 165/170/5.0

July 2, 2022

TOEFL 117 (30/29/28/30)

July 11, 2021

Selected Courses

(PhD) Theoretical and Empirical Foundations of Modern Machine Learning, (PhD) Deep Reinforcement Learning and Control, (PhD) Probabilistic Graphical Models, (PhD) Convex Optimization, (PhD) Advanced Introduction to Machine Learning, (PhD) Machine Learning in Practice, Intelligent Control