Junhyuck Kim

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Research Interests

Efficient architectures and inference, RL post-training, and automated AI research.

Work Experience

KRAFTON Seoul, Korea
AI Research Scientist *(Alternative military service; expected completion: Jul. 2027)* Jul. 2024 – Present

- Developed the agentic RL recipe for Raon-1 mini, a 30B MoE model, by empirically evaluating off-policy stabilization, loss aggregation, and policy optimization objectives; built core async RL components, including a rollout scheduler maintaining target domain proportions and controlling policy staleness.
- Designed and conducted scaling experiments to determine the architecture and training hyperparameters of Raon-1 mini, including attention mechanisms and residual connections. [HuggingFace] [Demo]
- Co-developed a multi-task preference-optimization pipeline for Raon-Speech, pairing offline positives with online-generated negatives, reducing repetition and improving task performance. [6]
- Developed the Think-Fusion recipe, combining weight-space merging and paired-response fine-tuning for controllable thinking/non-thinking modes in SKT's 519B MoE model A.X K1. [Blog] [PDF]
- Contributed to on-device deployment of small language model agents for inZOI with NVIDIA. [Demo]

Education

University of Cambridge Cambridge, UK
MEng in Information and Computer Engineering Oct. 2023 – Jun. 2024
Honours pass with distinction (first-class standard in both thesis and modules)

- Thesis: Neural Processes for Environmental Data (Advisor: Prof. Richard E. Turner)

University of Cambridge Cambridge, UK
BA in Information and Computer Engineering Oct. 2020 – Jun. 2023
First class (ranked 5th/5th/12th out of ~300 students in Years 1–3)

Publications

* Equal contribution · † Core contribution

[8] Pruning and Distilling Mixture-of-Experts into Dense Language Models [Summary] [GitHub]
Junhyuck Kim, Jihun Yun, Haechan Kim, Gyeongman Kim, Joonghyun Bae, Jaewoong Cho
NeurIPS 2026 **Oral** (top 1.4% of accepted papers)

[7] Is the Importance Ratio Necessary for Stable Reinforcement Learning in LLMs?
Shuibai Zhang*, **Junhyuck Kim***, Gyeongman Kim, Jaewoong Cho
NeurIPS 2026

[6] Raon-Speech Technical Report [Summary] [GitHub] [HuggingFace] [Demo]
KRAFTON
Technical Report, 2026

[5] Not All Bits Are Equal: Scale-Dependent Memory Optimization Strategies for Reasoning Models [Summary] [GitHub]
Junhyuck Kim, Ethan Ewer, Taehong Moon, Jongho Park, Dimitris Papailiopoulos
ICLR 2026 · NeurIPS 2025 ER Workshop **Spotlight**

[4] Orak: A Foundational Benchmark for Training and Evaluating LLM Agents on Diverse Video Games [Summary] [GitHub]
Dongmin Park*†, Minkyu Kim*†, Beongjun Choi*†, **Junhyuck Kim**†, Keon Lee†, Jonghyun Lee†, Inkyu Park†, Byeong-Uk Lee†, Jaeyoung Hwang†, Jaewoo Ahn†, Ameya S. Mahabaleshwarkar, Bilal Kartal, Pritam Biswas, Yoshi Suhara, Kangwook Lee, Jaewoong Cho
ICLR 2026 · EMNLP 2025 Wordplay Workshop **Outstanding Paper**

[3] Beyond RLHF: A Unified Theoretical Framework of Alignment
Jihun Yun*, Juno Kim*, Jongho Park, **Junhyuck Kim**, Jongha Jon Ryu, Jaewoong Cho, Kwang-Sung Jun
ICML 2025 MoFA Workshop

[2] Lexico: Extreme KV Cache Compression via Sparse Coding over Universal Dictionaries
[Summary] [GitHub]
Junhyuck Kim, Jongho Park, Jaewoong Cho, Dimitris Papailiopoulos
ICML 2025 · ICLR 2025 SLLM Workshop **Spotlight**

[1] Translation Equivariant Transformer Neural Processes
Matthew Ashman, Cristiana Diaconu, **Junhyuck Kim**, Lakee Sivaraya, Stratis Markou, James Requeima, Wessel P. Bruinsma, Richard E. Turner
ICML 2024

Awards

KRAFTON AI Fellowship, KRAFTON — *One of five inaugural fellows* 2023
Top Performing Student Prize, Electrical and Information Sciences, University of Cambridge 2023
— *1st among students qualifying in the area, department-wide*
Gnanalingam Prize, Trinity College Cambridge — *1st in Engineering within the college (Year 3)* 2023
Michael Longton Prize, Trinity College Cambridge — *1st in Engineering within the college (Years 1&2)* 2021, 2022
Examination Prize, Trinity College Cambridge — *Outstanding examination performance* 2021, 2022, 2023
Senior Scholarship, Trinity College Cambridge — *Repeated first-class examination performance* 2022, 2023
Junior Scholarship, Trinity College Cambridge — *First-class examination performance* 2021
People's Choice Award, Microsoft EMEA Intern Innovation Challenge 2022

Internships

KRAFTON Seoul, Korea
AI Research Intern Jun. 2023 – Sep. 2023
- Proposed an I-MMSE-based estimator of pointwise mutual information between labels and generated images in conditional diffusion models (Advisors: Profs. Ernest K. Ryu and Albert No).

Microsoft London, UK
Software Engineer Intern Jun. 2022 – Aug. 2022
- Designed prototypes to centralize MetaView server logs and alarms in Azure Portal.

Animo HealthTech London, UK
Data Scientist Intern Nov. 2021 – Apr. 2022
- Proposed a framework to predict Parkinson's UPDRS scores from smartphone accelerometer data.

Service

Conference Reviewer: NeurIPS 2026 (Top Reviewer), ICML 2026, ICLR 2026–2027
Workshop Reviewer: COLM 2026 ER, ICML 2026 AdaptFM, ICLR 2026 SPOT, NeurIPS 2025 ER

Languages

English (native), Korean (native)

References

Kangwook Lee — CAIO, KRAFTON; CTO, Ludo Robotics
Dimitris Papailiopoulos — Microsoft Research; Associate Professor, University of Wisconsin–Madison
Richard E. Turner — Professor, University of Cambridge