Ju-Seung Byun

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SUMMARY

ML researcher focused on reinforcement learning and agentic AI systems for long-horizon tasks. I am currently an Applied Researcher at Capital One AI Foundations. Previously, at LG AI Research, I built end-to-end CUA pipelines and worked on vision grounding via RL, diverse data generation for planning, and efficient agent architectures with RAG.

EXPERIENCE

Capital One New York, NY
Applied Researcher, AI Foundations *Oct 2026 – Present*

LG AI Research Ann Arbor, MI
Postdoctoral Researcher, Advanced Agent Lab *Mar 2025 – Oct 2026*

- Conducted research on computer-use agents (CUAs), with a focus on reinforcement learning-based visual grounding methods such as GRPO and diverse data generation.
- Developed enterprise CUAs for automating complex business workflows and designed agentic memory systems to improve long-horizon task execution.

Google Mountain View, CA
Software Engineering Intern (Ph.D.), ArC-AI *May 2022 – Aug 2022*

- Designed and implemented ML-augmented analysis pipelines for PII abuse detection.

Amazon Alexa Prize SimBot Challenge Ohio State University
Research Team Member *Apr 2022 – Apr 2023*

- Developed a user-centric embodied agent using ASR and visual grounding to support household-interaction tasks across diverse user backgrounds.

The Ohio State University Columbus, OH
Graduate Research Assistant, STRIDES Lab (Advisor: Andrew Perrault) *Aug 2019 – May 2025*

- Conducted research on robust reinforcement learning, distributional RL, multimodal reasoning with AI feedback, and policy optimization.

EDUCATION

The Ohio State University Ph.D. in Computer Science, Aug 2019 – May 2025
University of Southern California M.S. in Computer Science, Aug 2017 – Jun 2019
Inha University B.S. in Computer Science (Minor: Mathematics), Mar 2010 – Aug 2017

PUBLICATIONS

Same Data, More Learning: Curriculum RL and Supervised Guidance for GUI Grounding
Ju-Seung Byun, Jaekyeom Kim, Sungryull Sohn, Junkuan Liu, Honglak Lee
EACL 2027 (Findings)
GRPO complemented with SFT guidance for all-incorrect groups and a cumulative curriculum preventing forgetting.

Symmetric Reinforcement Learning Loss for Robust Learning on Diverse Tasks and Model Scales
Ju-Seung Byun, Andrew Perrault
ICML 2025 [Paper] [Code]
Robust RL objective improving stability across diverse tasks and model scales.

Normality-Guided Distributional Reinforcement Learning for Continuous Control
Ju-Seung Byun, Andrew Perrault
TMLR 2025 [Paper] [Code]
Distributional RL method leveraging normality for improved continuous control performance.

Fine-Tuning Text-to-Speech Diffusion Models Using Reinforcement Learning with Human Feedback
Jingyi Chen, **Ju-Seung Byun**, Micha Elsner, Andrew Perrault
Interspeech 2025 (Oral) [Paper]
RLHF-based post-training for text-to-speech diffusion models.

ARES: Alternating RL and SFT for Enhanced Multi-Modal Chain-of-Thought Reasoning via Diverse AI Feedback
Ju-Seung Byun*, Jiyun Chun*, Jihyung Kil, Andrew Perrault
EMNLP 2024 [Paper] [Code]
Iterative RL (sentence-level AI rewards) + SFT (AI-generated corrections) for multimodal chain-of-thought.

SalsaBot: Towards a Robust and Generalizable Embodied Agent
Chan Hee Song, Jiaman Wu, **Ju-Seung Byun**, et al.
Embodied AI Workshop, CVPR 2023 [Paper]
Robust embodied agent for interactive household tasks.

Training Transition Policies via Distribution Matching for Complex Tasks
Ju-Seung Byun, Andrew Perrault
ICLR 2022 [Paper] [Code] [Video]
Distribution-matching approach for learning transition policies in complex sequential tasks.

Proximal Policy Gradient: PPO with Policy Gradient
Ju-Seung Byun, Byungmoon Kim, Huamin Wang
arXiv 2020 [Paper] [Code]
Analysis and extension of proximal policy optimization with direct policy gradient.

Development of Application that Removes Moving Objects from Pictures
Ju-Seung Byun, Min-ho Kim, Byung Seok Shin
KIPS 2017
Image processing application for dynamic object removal.

SERVICE

Program Committee, Midwest Machine Learning Symposium (MMLS) *2023*
Conference Reviewer

- International Conference on Machine Learning (ICML) *2026*
- ACL Rolling Review (ARR) *2026*

TECHNICAL SKILLS

Languages: Python, C++, Java
ML & Systems: PyTorch, DeepSpeed, vLLM, LangGraph, ChromaDB
Areas: Computer-use agents, reinforcement learning, RLHF/RLAIF, multimodal grounding, agent post-training, curriculum learning, evaluation, retrieval-augmented generation