

# Jeongjae Lee

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## RESEARCH INTERESTS

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(1) Diffusion & flow-based models; (2) Reward alignment of generative models; (3) AI for Science and Health.

## EDUCATION

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### Korea Advanced Institute of Science and Technology (KAIST)

M.S., Graduate School of AI

GPA: 4.3/4.3, Advisor: Jong Chul Ye

Sep 2025 – Present  
Seoul, Republic of Korea

### Seoul National University

B.S., Electrical and Computer Engineering

GPA: 4.20/4.3, Rank: 7/158, Summa Cum Laude

On leave for 3 semesters due to military service (Feb 2021 - Aug 2022)

Mar 2019 – Aug 2024  
Seoul, Republic of Korea

### Gyeonggi Science High School

High School Diploma

Mar 2016 – Feb 2019  
Suwon, Republic of Korea

## PUBLICATIONS & PREPRINTS

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\*First authors, †Corresponding authors. If absent, first/last authors are first/corresponding.

### [W2] Aligning Few-Step Generative Models by Amortizing Sample-based Variational Inference

Jaewoo Lee\*, Hyeongyu Kang\*, Dohyun Kim, Kyuil Sim, Woocheol Shin, Minsu Kim, Taeyoung Yun, **Jeongjae Lee**, Sanghyeok Choi, Tabitha Edith Lee, Jong Chul Ye†, Jinkyoo Park†

*ICML 2026 Workshop* on Structured Probabilistic Inference & Generative Modeling. [paper] [code]

### [W1] Reward Score Matching: Unifying Reward-based Fine-tuning for Flow and Diffusion Models

**Jeongjae Lee**\*, Jinho Chang\*, Jeongsol Kim†, Jong Chul Ye†

*ICML 2026 Workshop* on Structured Probabilistic Inference & Generative Modeling. (BEST PAPER; 2/270 = 0.74%) [paper] [code]

### [C1] PCPO: Proportionate Credit Policy Optimization for Aligning Image Generation Models

**Jeongjae Lee**, Jong Chul Ye

*ICLR 2026*. [paper] [code]

### [J1] Fast and Accurate Protein Structure Search with Foldseek

Michel van Kempen, Stephanie S. Kim, Charlotte Tumescheit, Milot Mirdita, **Jeongjae Lee**, Cameron L. M. Gilchrist, Johannes Söding†, Martin Steinegger†

*Nature Biotechnology*, 2023. [paper] [code]

## EXPERIENCE

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### Yoshua Bengio Lab, Mila – Québec AI Institute

*Research Intern*

ADVISOR: Danyal Rehman

Developing autoregressive models for protein structure generation.

Developing improved RL post-training methods for flow-based generative models.

Jun 2026 – Sep 2026

### BISPL Lab, KAIST

*Graduate Research Assistant*

ADVISOR: Jong Chul Ye

[C1] PCPO: Developed a stable log-hinge based policy-gradient objective for diffusion & flow-based models.

[W1, Under review] RSM: Developed a unifying framework for RL post-training methods for diffusion & flow-based models.

Sep 2025 – Present

### BISPL Lab, KAIST

*Postbaccalaureate Researcher*

ADVISOR: Jong Chul Ye

Conducted medical AI industrial research in collaboration with DRTech and Skylabs.

DRTech: Improved CycleGAN-based scatter correction by mitigating blob artifacts.

Skylabs: Developed a TimeVQVAE model for respiratory-rate prediction from PPG data.

Sep 2024 – Aug 2025

### DeepMetrics

*Research Intern*

ADVISOR: Hyun Oh Song

[Under review] VentPilot: Developed data-processing, visualization, and model-selection pipelines for automated ventilator control in ICUs. Designed an auto-screening procedure to exclude physician actions during drug interventions. Designed clinically informed features for decision-tree models through iterative data analysis and consultation with clinicians.

Jan 2023 – Dec 2023

*Research Intern*

ADVISOR: Martin Steinegger

[J1] Foldseek: Optimized LDDT-alignment score computation using spatial hashing and SIMD instructions, achieving a 13× single-core speedup over Pymican. Built and maintained the automated protein database update pipeline for the Foldseek web server.

## HONORS & AWARDS

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### **SPIGM Workshop Best Paper, ICML 2026**

July 2026

[W1] Reward Score Matching; one of 2 Best Paper Award recipients and 6 oral presentations among 270 submissions.

### **Medical AI Scholarship**

Sep 2022 – Feb 2024

Merit-based scholarship from the Korea Health Industry Development Institute; KRW 3M per semester.

### **Presidential Science Scholarship**

Mar 2019 – Aug 2024

National scholarship for talented students in science and engineering from the Korea Scholarship Foundation; full tuition + KRW 2.5M per semester.

## REFERENCES

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**Danyal Rehman** Postdoctoral Researcher, Mila – Québec AI Institute  
**Jong Chul Ye** Professor, KAIST  
**Hyun Oh Song** CEO, DeepMetrics  
Professor, Seoul National University  
**Martin Steinegger** Associate Professor, Seoul National University