Taehyun Byun

Curriculum Vitae

Ph.D. Student · Department of Artificial Intelligence
Robot Intelligence Lab · Korea University, Seoul, Republic of Korea

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Research Interests

Motion synthesis, humanoid motion retargeting, generative models, and human–robot interaction. I am interested in developing friendly, natural robot behaviors for everyday settings, including the home.

Education

Ph.D. Student in Artificial Intelligence Sep 2021–Present

Korea University, Seoul, Republic of Korea
Advisor: Professor Sungjoon Choi

M.S. in Statistics Mar 2015–Aug 2017

Korea University, Seoul, Republic of Korea
Advisor: Professor Myoungshic Jhun

B.S. in Information and Mathematics Mar 2009–Feb 2015

Korea University, Sejong, Republic of Korea

Professional Experience

Founder and CEO Jan 2020–Apr 2021

ESTIMO Inc.
Developed a rehabilitation and physical therapy application using pose estimation.

Vision AI Researcher Mar 2018–Oct 2019

CONTINUUM Inc., Seoul, Republic of Korea
Computer vision research in pose estimation, classification, and detection.

Project Research Intern May 2017–Nov 2017

3DII
Vision-based defect detection.

Publications and Presentations

An asterisk denotes equal contribution.

1. Robot Motion Transitions with Human Motion Prior
Taehyun Byun, Taemoon Jeong, Yoonbyung Chai, Woojin Wie, Insu Park, Kyungjae Lee, Sungjoon Choi
arXiv preprint, 2026.

2. Controllable Single Motion Synthesis
Taehyun Byun, Sunwoo Kim, Minwook Chang, Sungjoon Choi
Revised and resubmitted to Pattern Recognition, 2026.

3. Adaptive Hilbert Diffusion Models for Controllable Smoothness in Continuous Function Generation
Taehyun Byun*, Seulbi Lee*, Kyungjae Lee, Sangheum Hwang, Sungjoon Choi
Computational Visual Media · Accepted, 2026.

4. CLIP-Actor-X: Text-driven 4D Human Avatar Generation via Cross-modal Synthesis-through-Optimization
Kim Youwang*, Taehyun Byun*, Kim Ji-Yeon, Sungjoon Choi, Tae-Hyun Oh
IEEE Transactions on Pattern Analysis and Machine Intelligence, 2026.

5. Effective Evaluation of Exoskeleton Using Exo-Agnostic Uncertainty-Aware Classification Model with Wearable Sensors
Taehyun Byun, Chanwoo Kim, Bokman Lim, Sungho Suh, Sungjoon Choi
ACM Augmented Humans (AHs) · Poster, 2026.

6. Robust and Expressive Humanoid Motion Retargeting via Optimization-Based Rig Unification
Taemoon Jeong, Taehyun Byun, Jihoon Kim, Keunjun Choi, Jaesung Oh, Sungpyo Lee, Omar Darwish, Joohyung Kim, Sungjoon Choi
2025 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), pp. 21619–21626, 2025.

7. Towards Embedding Dynamic Personas in Interactive Robots: Masquerading Animated Social Kinematic (MASK)
Jeongeun Park, Taemoon Jeong, Hyeonseong Kim, Taehyun Byun, Seungyoun Shin, Keunjun Choi, Jaewoon Kwon, Taeyoon Lee, Matthew Pan, Sungjoon Choi
IEEE Robotics and Automation Letters, vol. 9, pp. 8826–8833, 2024.

8. Score-based generative modeling through stochastic evolution equations in hilbert spaces
Sungbin Lim, Eun Bi Yoon, Taehyun Byun, Taewon Kang, Seungwoo Kim, Kyungjae Lee, Sungjoon Choi
Advances in Neural Information Processing Systems, vol. 36, pp. 37799–37812, 2023.

9. Learning Joint Representation of Human Motion and Language
Jihoon Kim, Youngjae Yu, Seungyoun Shin, Taehyun Byun, Sungjoon Choi
arXiv preprint, 2022.

10. Conditional motion in-betweening
Jihoon Kim, Taehyun Byun, Seungyoun Shin, Jungdam Won, Sungjoon Choi
Pattern Recognition, vol. 132, pp. 108894, 2022.

11. A Study of Correlation Curves Estimation
Taehyun Byun, Myungshic Jhun
Journal of The Korean Data Analysis Society, 2017.