

# Jeongik Cho

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## Summary

PhD candidate with 5 peer-reviewed publications on generative models, model inversion, and unsupervised learning methods. Skilled in PyTorch/TensorFlow and focused on applying deep learning to real-world tasks such as anomaly detection, representation learning, and controllable generation.

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## Education

**Concordia University**, Montreal, Canada

PhD (fast-track) in Computer Science

Sep 2020 – Jul 2025 (Expected)

GPA: 3.8/4.3

**Konkuk University**, Seoul, South Korea

B.Sc. in Computer Science & Engineering

Mar 2016 – Mar 2020

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## Technical Skills

**Languages:** Python, TensorFlow, PyTorch, Scikit-learn, Pandas

**Concepts:** Generative Models, GANs, VAEs, Diffusion Models, Anomaly Detection, Clustering, Representation Learning, Unsupervised Learning, Regression, Computer Vision, Pattern Recognition

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## Publications

- Cho, J.** and Krzyzak, A., "Training Self-supervised Class-conditional GANs with Classifier Gradient Penalty and Dynamic Prior," under review. Preprint: [Part 1](#), [Part 2](#)  
Proposed self-supervised class-conditional GAN with dynamic categorical prior and classifier gradient regularization.
- Cho, J.** and Krzyzak, A., "Efficient integration of perceptual Variational Autoencoder into Dynamic Latent Scale Generative Adversarial Network," Expert Systems, 2024. [\[link\]](#) [\[short pdf\]](#)  
Combined perceptual VAE and GAN inversion for enhanced inversion performance.
- Cho, J.** and Krzyzak, A., "Self-supervised Out-of-distribution Detection with Dynamic Latent Scale GAN," S+SSPR, 2022. [\[link\]](#) [\[short pdf\]](#)  
OOD (anomaly) detection method using log-probability of predicted latent vectors from GAN inversion.
- Cho, J.** and Krzyzak, A., "Dynamic Latent Scale for GAN Inversion," in ICPRAM, 2022. [\[link\]](#) [\[short pdf\]](#)  
Introduced a dynamic latent scaling strategy for architecture-agnostic GAN inversion with improved convergence.
- Cho, J.** and Yoon, K. "Conditional Activation GAN: Improved Auxiliary Classifier GAN," IEEE Access, 2020. [\[link\]](#)  
Multiple GAN loss for improved class-conditional generation performance and reduced hyperparameter.
- Braun, A., Kohler, M., **Cho, J.**, and Krzyzak, A., "Analysis of the rate of convergence of two regression estimates defined by neural features," Electron. J. Stat., 2024. [\[link\]](#)  
Proposed regression models training only output layers via regularized least squares, achieving theoretical convergence rates without backpropagation.
- Kohler, M., **Cho, J.**, and Krzyzak, A., "On the rate of convergence of an over-parametrized deep neural network regression estimate with ReLU activation function learned by gradient descent," under review.  
Proved that over-parameterized ReLU networks trained by gradient descent achieve dimension-free convergence under interaction model assumptions.

PhD thesis including latest experiments of publications are available in the [LinkedIn Featured section](#).

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## Experiences

**PhD Researcher**, Concordia University, Montreal, Canada

Sep 2020 – Present

- Developed architecture-agnostic generative models and their inversion algorithms.
- Applied findings to out-of-distribution detection, image manipulation, and representation learning.

**Teaching Assistant**, Concordia University, Montreal, Canada

Jan 2022 – Dec 2024

- Assisted in undergraduate courses by leading tutorial lectures and grading assignments, projects, and exams.

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## Languages

Korean (native), English (proficient), Japanese (proficient)