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.

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

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

Publications

1. **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] [short pdf]
   - Proposed self-supervised class-conditional GAN with dynamic categorical prior and classifier gradient regularization.
2. **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.
3. **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.
4. **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.
5. **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.
6. 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.
7. 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.

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.

Languages

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