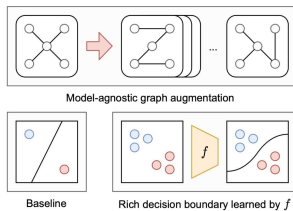
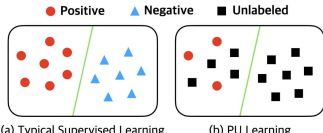
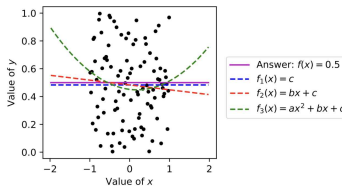


Data AI Lab	■ Contact information			
	Professor	Jaemin Yoo	Mail	jaemin@kaist.ac.kr
	Website (Prof.)	https://jaeminyoo.github.io		
	Website (Lab.)	https://dai.kaist.ac.kr		
■ Current state of the Lab. (in Summer 2025)				
6 Master's students, 1 visiting PhD student and 12 undergraduate interns.				
■ Research areas				
1. Graph Neural Networks (GNNs)				
• Graphs represent dynamic interactions between entities.				
- Social networks, molecular graphs, knowledge graphs, etc.				
Q: How can we design GNNs robust to real-world noise?				
Q: How can we understand GNNs better in theory and practice?				
2. Machine Learning on Time Series				
• Most time series data contain multiple correlated variables.				
- E.g., stock prices, traffic patterns, sensor data, etc.				
• Some data have both spatial and temporal relationships.				
• Some data have irregular observations over time.				
Q: How can we consider such diverse properties in ML models?				
3. Recommender Systems (RecSys)				
• RecSys is everywhere: YouTube, Netflix, Amazon, Coupang, etc.				
• RecSys a popular application of GNNs and time series ML.				
- User history can be represented as a graph or a time series.				
Q: How can we improve RecSys performance with diverse views?				
4. Self-supervised Learning (SSL)				
• SSL is the key component for large foundation models.				
- Since labeled data are insufficient for such heavy models.				
• SSL is being studied for almost all tasks and applications.				
Q: How can we train ML models with insufficient data or labels?				
Q: How can we improve SSL for GNNs, RecSys, or time series?				
				
Fig 1. Graph augmentation				
				
(a) Typical Supervised Learning (b) PU Learning				
Fig 2. Positive-unlabeled learning				
				
Value of y				
Value of x				
Answer: $f(x) = 0.5$				
$f_1(x) = c$				
$f_2(x) = bx + c$				
$f_3(x) = ax^2 + bx + c$				
Fig 3. Strength of simplicity				
■ Recommended courses & Career after graduation				
• Recommended courses: Math (EE210, EE213); Machine learning (EE331); Big data mining (EE412)				
• Career after graduation: Software engineers; Data scientists; ML engineers; ML research scientists				
■ Introduction to the Lab.				
Our research group has started in August 2023 when Prof. Jaemin Yoo began to work as an Assistant Professor in KAIST EE. Our primary goal is to enhance the generalizability and practicality of machine learning algorithms for real-world challenges, covering a variety of data representations and applications.				
■ Recent research achievements (2022-2025)				
• D. Lee et al. "Aggregation Buffer: Revisiting DropEdge with a New Parameter Block." ICML 2025.				
• J. Yoo et al. "Self-Tuning Self-Supervised Image Anomaly Detection." KDD 2025.				
• J. Yoo et al. "DSV: An Alignment Validation Loss for Self-supervised Outlier Model Selection." ECML PKDD 2023.				
• J. Yoo et al. "Less is More: SlimG for Accurate, Robust, and Interpretable Graph Mining." KDD 2023.				
• J. Yoo et al. "Accurate Node Feature Estimation with Structured Variational Graph Autoencoder." KDD 2022.				
• J. Yoo et al. "Model-Agnostic Augmentation for Accurate Graph Classification." TheWebConf 2022.				