

DongJun Lee

MACHINE LEARNING & OPTIMIZATION

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Education

Georgia Institute of Technology

Ph.D. Student, Industrial Engineering

Atlanta, USA

Aug. 2025 - Present

- NSF AI4OPT Institute; Advisor: Prof. Pascal Van Hentenryck

Seoul National University

M.S. in Artificial Intelligence

Seoul, South Korea

Sep. 2023 - Aug. 2025

- Data Science & AI Laboratory (DSAIL); Advisor: Prof. Sungroh Yoon; GPA: 4.25 / 4.30

Seoul National University

B.S. in Mechanical Engineering

Seoul, South Korea

Mar. 2017 - Aug. 2023

- Summa Cum Laude; GPA: 4.03 / 4.30

Research Experience

Georgia Tech | NSF AI4OPT Institute

Graduate Researcher; Advisor: Prof. Pascal Van Hentenryck

Atlanta, USA

Sep. 2025 - Present

- Investigating neural solution prediction and structured repair for large-scale, multi-period mixed-integer optimization with temporal and cross-resource constraints.
- Studying self-supervised proxies for multi-period resource-allocation linear programs using interval propagation and projection-based feasibility repair.
- Exploring context-conditioned decision policies for multistage stochastic optimization.

Seoul National University | DSAIL

Graduate Research Assistant; Advisor: Prof. Sungroh Yoon

Seoul, South Korea

Sep. 2023 - Aug. 2025

- Studied deep learning for long-range time-series forecasting and multivariate anomaly detection.
- Investigated temporal representations, spectral attention, and contrastive learning for long-range dependencies and multivariate structure.

Selected Publications

UNDER REVIEW

- 2026 W. Li, **D. Lee**, P. Van Hentenryck, "SMOP: Self-supervised Multi-period Optimization Proxy for Resource Allocation with Temporal Constraints," **ICLR 2027** (under review).

PUBLISHED

- 2025 H. Kim, J. Mok, **D. Lee**, et al., "Causality-Aware Contrastive Learning for Robust Multivariate Time-Series Anomaly Detection," **ICML**.
- 2025 J. Kim*, H. Kim*, H. Kim, **D. Lee**, S. Yoon, "A Comprehensive Survey of Deep Learning for Time Series Forecasting: Architectural Diversity and Open Challenges," **Artificial Intelligence Review**. (* Equal Contribution)
- 2024 B. G. Kang*, **D. Lee***, et al., "Introducing Spectral Attention for Long-Range Dependency in Time Series Forecasting," **NeurIPS**. (* Equal Contribution)

Applied Research & Industry Collaborations

Explainable Attention-Based Credit Risk Modeling

Equifax | Industry Collaboration

Atlanta, USA

Jan. - Apr. 2026

- Built an attention-based credit risk modeling framework, including model tuning and aligned export of internal embeddings for analysis.
- Developed PCA/CCA-guided analyses connecting Transformer features with interpretable credit attributes.

Risk-Constrained Trading Agent

Independent Research

Atlanta, USA

Aug. 2025 - Jan. 2026

- Developed a leakage-safe multi-asset data pipeline and multi-task Transformer for ATR-scaled bracket-hit probabilities, evaluated with walk-forward validation.
- Implemented cost- and slippage-aware backtests with volatility-scaled sizing, exposure controls, and drawdown limits.

Optimization Proxies for Driving Performance

Hyundai | Industry Collaboration

Seoul, South Korea

Mar. - Jul. 2025

- Automated transmission-control calibration maps and developed a constraint-driven, physics-consistent pipeline to match simulation with vehicle data.

EV Battery Defect Anomaly Detection

LG Energy Solution | Industry Collaboration

Seoul, South Korea

Aug. 2024 - Jun. 2025

- Developed process-aware time-series tokenization and contrastive learning for imbalanced, noisy labels; combined temporal embeddings with expert-engineered features.

AI-Based Motor Calibration

Hyundai Genesis | Industry Collaboration

Seoul, South Korea

Mar. - Oct. 2024

- Developed deep-learning methods to predict motor calibration maps from sparse operating-point data for reducing sixth-harmonic torque ripple and noise.

Internships

PricewaterhouseCoopers Consulting

Associate Consultant Intern

Hwaseong, South Korea

Jul. 2023

- Supported a consulting project with Logic, DRAM, and Flash R&D teams at a semiconductor company.

OnePredict

Data Scientist Intern

Seoul, South Korea

Jun. - Jul. 2021

- Developed deep-learning methods for turbine-system fault diagnosis using vibration and operational data.

Technical Skills

Programming: Python (PyTorch), Julia.

Optimization: Mathematical optimization, optimization proxies, feasibility repair, multi-period mixed-integer optimization, and multistage stochastic optimization.

Machine learning: Temporal representation learning, time-series forecasting, anomaly detection, and contrastive learning.

Earlier Publication

2016

D. Lee, T. Yoon, C. Lee, "A Study on the Posture Based Control of Robotic Fixation Device," *International Journal of Applied Engineering Research*, Vol. 11, No. 9, pp. 6655–6659.