Matthew DongKyu Cho

GRADUATE RESEARCHER @ SEOUL NATIONAL UNIVERSITY · RESEARCH SCIENTIST INTERN @ LG AI RESEARCH

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Personal Profile

A Research Scientist Intern at LG AI Research, Data Intelligence Lab. A recent master's graduate from the Graduate School of Data Science, Seoul National University, advised by Professor Sanghack Lee. My research interests include Causal Representation Learning and Domain Generalization.

Education

Seoul National University   *Seoul, South Korea*

Master of Science in Data Science   *March 2021 - August 2023*

- Advised by Professor Sanghack Lee
- **Courses:** Machine Learning and Deep Learning for Data Science, Big Data and Knowledge Management Systems, Software Platforms for Data Science, Machine Learning for Visual Understanding, Text Analytics and Big Data, Causal Inference for Data Science, Special Topics in Data Science: Meta Learning, Data Science Capstone Project, Dissertation Research, Special Lecture on Data Science

Seoul National University   *Seoul, South Korea*

Bachelor of Arts in Information Science and Culture / Western History (Double Major)   *March 2014 - February 2021*

- Graduated with Distinction (Cum Laude)

Work Experience

LG AI Research   *Seoul, South Korea*

Research Scientist Intern   *July 2023 - Present*

- Time-Series Foundation Models, Out-of-distribution generalization
- Causality-Driven Prediction & Optimization for Decision-Making

Causality Lab, Seoul National University   *Seoul, South Korea*

Graduate Research Assistant   *July 2021 - Present*

- Collaborative Research Projects with corporate partners (NH Investments & LG AI Research)

VAIV Company (*Former* DaumSoft)   *Seoul, South Korea*

Analyst Intern   *Jan 2019 - Feb 2019*

- Data-Driven Market Analysis for corporate clients.

Republic of Korea Armed Forces   *Icheon, South Korea*

Military Interpreter   *March 2016 - December 2017*

- Military Interpreter for the Republic of Korea Armed Forces.
- **Technical Skills:** Korean-English Interpretation

Research

Single Source Domain Generalization via Oracle Regularization using Causal Mechanisms   *Seoul, South Korea*

Seoul National University Causality Lab   *Working Paper (Under Review)*

- Keywords: Causal Representation Learning, Domain Generalization

(Working Title) Surgical Weight Averaging for Out-of-domain Generalization   *Seoul, South Korea*

LG AI Research   *Working Paper*

- Keywords: Ensemble Learning, Domain Generalization

DELPHI: Leveraging Self Knowledge as Teachers for Out-of-domain Robustness   *Seoul, South Korea*

Seoul National University Causality Lab   *Working Paper*

- Keywords: Causal Representation Learning, Domain Generalization, Continual Learning

Projects

Stock Interrelation Research using Keyword and Supply Chain data   *Seoul, South Korea*

Seoul National University and NH Investment & Securities   *July 2021 - August 2022*

- A collaborative research with NH Investment & Securities.
- A learning pipeline for a Financial Language Model
- Interactive Graph Database using the Bloomberg Supply Chain Data.
- **Technical Skills:** Financial-Domain specific Language Models, Financial Data, Graph Database.

Towards Language Models Capable of Causal Reasoning   *Seoul, South Korea*

Seoul National University and LG AI Research   *August 2022 - Present*

- Collaborative research with LG AI Research & UNIST
- A Causal NLP Project Under Progress
- **Technical Skills:** Causal Inference, Large-scale Language Models.

Class Projects   *Seoul, South Korea*

Seoul National University   *March 2021 - July 2023*

- Class Project for *Special Topics in Data Science- Meta Learning*: "Semi-Supervised Federated Learning with Representations"
- Class Project for *Machine Learning for Visual Understanding*: "A combination approach for wikipedia Image/Caption Matching Competition"

Skills

Programming	Python, R, SQL.
Miscellaneous	Linux, Docker, Neo4j, LaTeX(Overleaf/R Markdown), Tableau, Git.
Soft Skills	French, Korean, English-Korean Interpretation

Languages

English	Professional proficiency/ TOEFL 118 (2020.08), 116 (2022.08)
Korean	Native proficiency
French	Intermediate proficiency/ DELF B1