Hwang, Yoontae (Lucas) — Ph.D Candidate

Ulsan National Institute of Science and Technology (UNIST)
Department of Industrial Engineering

Email: yoontae@unist.ac.kr
Office: +82-10-2995-6719
github: https://github.com/Yoontae6719
linkdin: www.linkedin.com/in/yoontae

News (Update: 10/01/2023)

As an researcher(Ph.D Candidate) with a strong background in AI, I am actively seeking a position to further advance my research in this field. My **expected graduation date is in September 2024**, although it is not yet confirmed. I specialize in developing and optimizing deep learning models, with a focus on topics such as **time-series modeling**(temporal domain), **Tabular data modeling**(static domain) and **Finance**.

Education

Ulsan National Institute of Science & Technology(UNIST) — **Ulsan, South Korea**
Ph.D in Industrial Engineering — *Mar. 2020 to Present*
Advisor: Yongjae Lee

Sangmyung University — **Seoul, South Korea**
B.S. in Economics & Mathematics (Double Major) — *Feb. 2019*

Experience

Shinhan Investment — **Seoul, South Korea**
Industry-Academic Cooperation External Researcher — *Jan. 2021 to Jun 2021*

Shinhan Bank — **Seoul, South Korea**
Contract Worker in Shinhan Big Data Center — *Jan. 2019 to Feb. 2019*
Project: Advancement of Peer Group Consulting System Algorithm

Research Keywords & Core Qualifications

Temporal data mining
Time-series forecasting
Time-series representation
Temporal domain generalization

Deep Learning & Machine Learning
Self- and Semi-supervised learning
Tabular data modeling

Finance
Household finance
Behavior finance

Awards

Finda Predictive analytics for loan applications with app usability data, top 3% among 200 team. — Dec. 2022
Samsung AI Challenge Materials discovery competition, top 10% among 250 team. — Sep. 2022
LG AI Research Predicting antenna performance of autonomous sensors, top 5% among 1768 team. — Sep. 2022

Ministry of Science and ICT Sound event classification in water pipe, top 4% among 152 team. Mar. 2022
Statistics Korea Household financial health checkup using artificial intelligence model, 3rd Sep. 2020
DB Finance & Economics A Study on the estimation of apartment price index, 3rd Dec. 2019
Shinhan Bank Development of financial index using financial data, 2nd Dec. 2018

Grant

National Research Foundation of Korea Ph.D. Fellowship, USD 30,000 Jun. 2022 to Jun. 2024
Ulsan National Institute of Science and Technology Fully Funded Scholarships Mar. 2020 to Present

Publication

1. **Yoontae Hwang**, Junhyeong Lee, Daham Kim, Seunghwan Noh, Joohwan Hong, Yongjae Lee, *"SimStock: Representation Model for Stock Similarities"*, ICAIF, 2023, *Acceptance Rate* ≈ 27%, ***(First)***.
2. Kyungbin Kim, **Yoontae Hwang**, Dongcheol Lim, Suhyeon Kim, Junghye Lee, Yongjae Lee, *"Household Financial Health: A Machine Learning Approach for Data-Driven Diagnosis and Prescription"*, Quantitative Finance, 2023, *Acceptance Rate* ≈ 23%***(Co-First)***.
3. **Yoontae Hwang**, Yongjae Lee, Fabozzi, Frank J. *"Identifying Heterogeneity of Households via Deep Clustering"*, Annual of Operation Research, 2022, *Acceptance Rate* ≈ 33%, ***(First)***.
4. **Yoontae Hwang**, Junpyo Park, Yongjae Lee, Dong-Young Lim, *"Stop-loss adjusted labels for machine learning-based trading of risky assets"*, Financial Research Letters, *Acceptance Rate* ≈ 24%***(First)***.
5. **Yoontae Hwang**. *"A Study on the Estimation of Apartment Price Index: Focused on the Machine Learning Algorithm"*, Journal of Money & Finance, 2019, *Domestic*, **(First)**.

Submitted paper

1. **Yoontae Hwang**, Youngbin Lee, Yongjae Lee, *"STCC: Semi-Supervised Learning for Tabular Datasets with Continuous and Categorical Variables"*, WWW 2023, Submit, *Acceptance Rate* ≈ 20%, ***(First)***.
2. Junpyo Park, **Yoontae Hwang**, Jangho Kim, Yongjae Lee, Fabozzi, Frank J., *"Heterogeneous Trading Behaviors of Individual Investors"*, Financial Research Letters, Submit, *Acceptance Rate*≈ 24%***(Co-First)***.
3. Jaeho Kim, Seok-ju Hanhn, **Yoontae Hwang**, Junghye Lee, Seulki Lee, *"CAFO: Channel Attention Feature Orthogonalization for Explaining Multivariate Time Series Classification"*, (***Third***)

Working paper

1. **Yoontae Hwang**, *"Financial Representation Learning"*, Wip, **(PhD Thesis)**
2. **Yoontae Hwang**, Yongjae Lee, *"Universal Stock Representation"*, Wip,
3. *"Rethinking and Improving Long-term Time Series Forecasting"*, Wip.
4. *"Future Testing: Realistic asset path simulations for derivatives pricing"*, Wip

Project

1. **National Research Foundation of Korea** Jun. 2022 to Jun 2024
   Personalized Asset Management via Household Financial Health Index *Principal Investigator*
2. **Korea Energy Economics Institute** Aug. 2022 to Oct. 2022
   Understanding of the Machine Learning Method for DR market *Researcher*

3. **Korea Energy Economics Institute** Oct. 2021 to Nov. 2021
Development of Deep Learning Models for Energy Demand Forecast *Researcher*

4. **National Research Foundation of Korea** May. 2021 to Apr. 2024
Big data analysis of individual investor's trading patterns *Researcher*

Professional Services

Journal Reviewer: Financial Research Letters https://www.sciencedirect.com/journal/finance-research-letters

Teaching, Mentoring & Tutorials

Teaching Assistant: IE412, AI for Finance UNIST Spring 2023
Teaching Assistant: IE412, AI for Finance UNIST & KAIST Spring 2022
Teaching Assistant: IE312, Time-Series Analysis UNIST Fall 2021
Teaching Assistant: IE202, Investment Science UNIST Spring 2020
Tutorials: UNIST-POSTECH-KAIST Data Science Competition Fall 2021

Invited talks

AI Factory: Latest research trends in long term time-series forecasting, PDF files: https://lnkd.in/gdY3hbbp Sep 2022

Patents

Feature Importance Explainer of Multivariate Time series Data based on Image Conversion, 2022 (granted, Grant.no UTP22260KR-00)

Reference

Yongjae Lee, Ph.D. — UNIST Assistant Professor (M.S. & Ph.D. Advisor)
Assistant Professor of Department of Industrial Engineering
Ulsan National Institute of Science & Technology (UNIST)
Editorial Advisory Board Member, Journal of Financial Data Science
Collaborative Researcher, KAIST Center for Wealth Management Technologies
External Expert, Institute of Interdisciplinary Information Science Core Technology, Tsinghua University
Email: yongjaelee@unist.ac.kr
Phone: 82-52-217-3118
Homepage: https://scholar.google.com/citations?user=dAMXPRcAAAAJ&hl=en

Collaborative Researcher

Frank Fabozzi, Ph.D. — EDHEC Business School Professor
Email: frank.fabozzi@edhec.edu
Homepage: https://scholar.google.com/citations?user=tqXS4IMAAAAJ&hl=en

Junghye Lee, Ph.D. — Seoul National University Assistant Professor
Email: junghye@snu.ac.kr
Homepage: http://d3mlab.snu.ac.kr/