Chanwoo Choi

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Research interests   **AI in Finance, Portfolio Optimization, Financial NLP, Market Signal Detection, Time-Series Data Analysis (Embedding & Forecasting)**

Education

The University of Edinburgh	Edinburgh, UK
Master of Informatics (MInf)	2021 – 2022

Supervisors: Dr. Robin Hill, Dr. DK Arvind *Grade 3.45/4.0 (US equiv.)*
*Transferred from BSc Artificial Intelligence to MInf

The University of Edinburgh	Edinburgh, UK
BSc Artificial Intelligence	2017 – 2021

Supervisors: Dr. Robin Hill, Dr. DK Arvind *Grade 3.47/4.0 (US equiv.)*

Research Papers

An Active Tutor: Expert-Infused Deep Reinforcement Learning for Dynamic Portfolio Selection of Diverse Assets
Chanwoo Choi, Juri Kim
Knowledge-Based Systems (Q1, IF 8.8, SJR 2.065), 2024
https://doi.org/10.1016/j.knosys.2024.111739.

Multimodal Data Fusion with Attention Mechanism for Enhanced Deep Reinforcement Learning in Portfolio Optimization
Chanwoo Choi, Juri Kim
In Preparation

Extractive text summarisation of Privacy Policy documents using machine learning approaches
Chanwoo Choi
Master's Thesis, 2022

Research Experience

An Active Tutor: Expert-Infused Deep Reinforcement Learning for Dynamic Portfolio Selection of Diverse Assets

May 2023 - Apr 2024
Mentor: Prof. Dr. Sung-kook Han, Prof. Dr. Juri Kim (Won Kwang University)
Integrated imitation learning with deep reinforcement learning for enhanced dynamic portfolio optimisation. Demonstrated up to 39.70% performance improvement over established rule-based asset allocation strategies using adjusted Sharpe Ratio across diverse investment conditions.

Multimodal Data Fusion with Attention Mechanism for Enhanced Deep Reinforcement Learning in Portfolio Optimization
Apr 2024 - Present
Mentor: Prof. Dr. Sung-kook Han (Won Kwang University)
Integrated natural language processing and attention-based mechanism to acquire additional context to advance the portfolio selection model. Leveraged this combined dataset, including asset price momentum, to train an RL-based algorithmic trading model.

Work Experience	**Ministry of National Defense**	Daejeon, South Korea
	AI Research Specialist	Nov 2023 - Present

- Serving as a *Military Science & Technology Soldier* specializing in AI research, a position awarded by the Republic of Korea Army Headquarters
- Conducting research on building deep RL models to recommend the optimal combination of artillery shells to maximise enemy damage
- Researching and developing language model-backed search engines to find regulatory clauses within the military context

AcrossB, Inc. Data Research Center	Seoul, South Korea
Data Scientist	Aug 2022 - June 2023

- Undertook collaborative research to enhance existing time-series forecasting models to accurately predict future sales of e-commerce products
- Build and deploy data pipelines with Prefect to schedule data acquisition, preprocessing, ML model training and batch inferencing.
- Build interactive data visualisation applications with Dash and Plotly
- Fine-tune Large Language Models to develop and serve micro-services for extractive summarisation of e-commerce product titles and descriptions

Layermind, Inc. AI R&D Taskforce	Seoul, South Korea
Data Scientist (Summer Intern)	Summer 2021 (3 months)

- Developed a multi-modal machine learning model for automatic waste material classification
- Constructed data pipelines for cleansing and pre-processing the image data of waste materials

Cenblock, Inc. AI Development Team	Seoul, South Korea
Data Scientist (Summer Intern)	Summer 2020 (3 months)

- Develop a machine learning based application to estimate sentence years for criminal cases based on related text documents

- Execute data modeling, data preprocessing, model design & training, real-time inferences and back-end development along with the application deployment

Skills

Programming
Languages: Python (Proficient), C++ (Basic), Javascript (Basic)
Libraries & Tools: Pytorch, Tensorflow, Dash, Gym, AWS, BigQuery, Docker

Certifications
AWS Certified Machine Learning - Specialty (Code *V82369EC8BR1QRCM*)
OPI (Oral Proficiency Interview) English - Superior

Languages
English (Fluent), Korean (Native)