

# Chanwoo Choi

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**Research interests**     **Reinforcement Learning for Portfolio Optimisation, Time Series Analysis & Forecasting, Financial NLP**

**Education**     **Nanyang Technological University**     Singapore  
Ph.D. in Computer Science & Engineering     2025 – Present  
Supervision: Dr. Xiuyi Fan, Dr. Quek Hiok Chai (Mentor)

**The University of Edinburgh**     Edinburgh, UK  
Master of Informatics (MInf)     2021 – 2022  
Supervision: Dr. Robin Hill, Dr. DK Arvind *Grade Honours (Distinction)\**  
\* UK grade converted to Singapore equivalent  
\*\*Transferred from Artificial Intelligence (BSc) to MInf

**The University of Edinburgh**     Edinburgh, UK  
Artificial Intelligence (BSc)     2017 – 2021  
Supervision: Dr. Robin Hill, Dr. DK Arvind *Grade Honours (Distinction)\**  
\* UK grade converted to Singapore equivalent

**Publications**     **Outperforming The 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>.  
(Citations: 4)

**Extractive text summarisation of Privacy Policy documents using machine learning approaches**  
Chanwoo Choi  
*Master's Dissertation, 2022*  
<https://doi.org/10.48550/arXiv.2404.08686>  
(Citations: 1)

**Research Experience**     **Project Research Scientist**     Won-Kwang University  
  
May 2023 - Dec 2023  
Mentors: Prof. Dr. Sung-kook Han, Prof. Dr. Juri Kim  
- Integrated imitation learning and **reinforcement learning** for dynamic **portfolio optimisation**. Achieved 47% Sortino and 39.70% Sharpe ratio improvement on 40-year multi-asset dataset.  
- Led all aspects of the research from conceptualisation to manuscript preparation and revision cycles.

- Published in ***Knowledge-Based Systems***: "Outperforming The Tutor: Expert-Infused Deep Reinforcement Learning for Dynamic Portfolio Selection of Diverse Assets"

## Work Experience

### Ministry of National Defense

AI Research Specialist (National Service)

Daejeon, South Korea

Dec 2023 - Jan 2025

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

### AcrossB, Inc. Data Research Center

Data Scientist (Full-Time)

Seoul, South Korea

Aug 2022 - June 2023

- Conducted 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.
- Built interactive data visualisation applications with Dash and Plotly
- Fine-tuned **Large Language Models** to develop and serve microservices for extractive summarisation of e-commerce product titles and descriptions

### Layermind, Inc. AI R&D Taskforce

Data Scientist (Summer Intern)

Seoul, South Korea

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

Data Scientist (Summer Intern)

Seoul, South Korea

Summer 2020 (3 months)

- Developed a ML-based application to estimate sentence years for criminal cases based on related legal text data

## 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)