

SUBIN KIM

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Education

Korea Advanced Institute of Science & Technology (KAIST)

Daejeon, South Korea

Master of Science, School of Computing

Mar. 2023 – Feb. 2025

- GPA: 3.78/4.3
- Advisor: Sungjin Ahn

Bachelor of Science, School of Computing

Mar. 2018 – Feb. 2023

- CGPA: 3.51/4.3, Major GPA: 3.85/4.3
- Minor in Industrial & Systems Engineering

Publications

*: equal contributions

- [1] {Hany Hamed*, **Subin Kim***}, Dongyeong Kim, Jaesik Yoon, Sungjin Ahn, “Dr. Strategy: Model-Based Generalist Agents with Strategic Dreaming”, *International Conference on Machine Learning (ICML)*, 2024.
- [2] **Subin Kim**, Prin Phunyaphibarn, Donghyun Ahn, and Sundong Kim, “Playgrounds for Abstraction and Reasoning”, *NeurIPS Workshop for on neuro Causal and Symbolic AI (NeurIPS nCSIW)*, 2022. *Korea Software Congress (KSC)*, 2022 (**Best Paper Award**).
- [3] **Subin Kim**, Prin Phunyaphibarn, Donghyun Ahn, Sundong Kim, “Test Bed for Abstraction and Reasoning”, *Journal of KIISE*, Vol. 51, No. 1, 2024.
- [4] **Subin Kim**, Sumin Han, Dongman Lee, “Analysis of impact on Seoul traffic congestion by Land Use using travel speed and POI”, *Korea Software Congress (KSC)*, 2021.

Research Experience

MLML Lab (KAIST)

Daejeon, South Korea

Research Assistant (Advisor: Sungjin Ahn)

Mar. 2023 – Feb. 2025

- **Divide-and-conquer strategy for goal-conditioned MBRL agent (ICML 2024)**
 - Proposed the concept of “strategic dreaming” in pixel-based MBRL, where the agent can leverage the structure of the state space to enable a divide-and-conquer-like strategy.
 - Improved prior methods in visually complex and partially observable navigation tasks.

DS Lab (KAIST)

Daejeon, South Korea

Undergraduate Research Intern (Advisor: Sundong Kim, Meeyoung Cha)

July. 2022 – Jan. 2023

- **Simplify & extend ARC for Research-optimized dataset (NeurIPS nCSIW 2022)**
 - Built *Mini-ARC* that extends the original ARC dataset with creative patterns and restricted size.
 - Built *O2ARC*, which is an object-oriented web interface to solve & suggest mini-ARC.
 - Hosted *Happy ARC Day* including over 40 participants to create and peer review Mini-ARC.
 - Gave a *poster presentation* in NeurIPS@nCSIW & Recieved *Best Paper Award* from KSC.

DM Lab (KAIST)

Daejeon, South Korea

Undergraduate Research Intern (Advisor: Kijung Shin)

Dec. 2021 – June. 2022

- Open Dialogue Generation based on knowledge graph (*Introduction to Artificial Intelligence, Spring 2022*)
 - Improved an open dialogue generation model based on knowledge graphs.
 - Analyzed how appropriate or toxic the generated dialogues were in various situations.

PROSYS Lab (KAIST)

Undergraduate Research Intern (Advisor: Kihong Heo)

Daejeon, South Korea

June. 2021 – Sep. 2021

- Tracer: Signature-based Static Analysis for Detecting Recurring Vulnerabilities (*submitted to ICSE 2022*)
 - Participated as a second author in building a framework called ‘Tracer’ detecting software vulnerabilities by exploiting existing vulnerability patterns.
 - Gave a *poster presentation* for KAIST PL seminar (Host: Sukyoung Ryu)

CDSN Lab (KAIST)

Undergraduate Research Intern (Advisor: Sumin Han, Dongman Lee)

Daejeon, South Korea

Jan. 2021 – June. 2021

- Analysis of impact on Seoul traffic congestion by Land Use using travel speed and POI (*KSC 2021*)
 - Divides land use into nine categories and exploits this information to predict traffic patterns.
 - Utilizes Multiple Linear Regression, Random Forest Regression, XGBoost Regression, and FNN to predict traffic patterns.
- Spatio-Temporal Attention based Conditional Traffic Flow Prediction in Urban Areas (*submitted to ECML-PKDD 2021*)
 - Participated as a second author in predicting traffic flow through spatio-temporal neural networks.
 - Implemented data visualization of POI data & baseline neural models.

Work Experience

Bookend

Software Engineering Intern

Daejeon, South Korea

June. 2023 – Dec. 2023

- Built Chrome extension using Chat-GPT with React, OpenAI API.

Bank Of Wine

Software Engineering Intern

Daejeon, South Korea

June. 2022 – Aug. 2022

- Built internal payment system of the company with React, Redux, MongoDB, and AntD.

RedWit

Software Engineering Intern

Daejeon, South Korea

June. 2021 – Aug. 2021

- Built internal scheduling system of the company with React, Redux, and MongoDB.

Teaching Experience

Korea Advanced Institute of Science & Technology (KAIST)

TA, Deep Reinforcement Learning and Game AI (CS492)

TA, Hana Bank-KAIST Digital Warrior Program

TA, Korean for International Students (HSS193, HSS586)

TA, Korean Camp for International Students

Daejeon, South Korea

Mar. 2024 – June. 2024

Oct. 2021 – June. 2022

Mar. 2022 – Dec. 2022

Jan. 2022 - Feb. 2022

Awards & Scholarships

National Scholarship, KAIST (Aided by Government of South Korea)

2023 – 2025

Best Paper Award, Korea Software Congress (KSC)

2022

National Excellence Scholarship, Korea Student Aid Foundation (KOSAF)

2019 – 2022

National Scholarship, Korea Student Aid Foundation (KOSAF)

2018

Proficiency in Skills

Languages: Python, Java, C++, JavaScript

Library/Frameworks: PyTorch, TensorFlow, Google Cloud TPU

Backend: Flask, Node.js, Express.js

Frontend: React, HTML, CSS

Clouds & Databases: AWS, MySQL, MongoDB

Web Technologies: Docker, Socket.IO

Developer Tools: Postman, VS Code, GitHub, Xcode

Leadership Experience

Certified Korean Red Cross lifeguard	Daejeon, South Korea <i>Jan. 2023 – Present</i>
KAIST swimming team KAORI	Daejeon, South Korea
Senior member	Jun. 2021 - Present
50m Silver medal in women backstroke (Daejeon Masters)	Jun. 2022
50m Bronze medal in women freestyle (Daejeon Masters)	Jun. 2022