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 diaglogue generation model based on knowledge graphs.
  - Analyzed how appropriate or toxic the generated dialogues were in various situations.

PROSYS Lab (KAIST) **Daejeon, South Korea**
Undergraduate Research Intern (Advisor: Kihong Heo) *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) **Daejeon, South Korea**
Undergraduate Research Intern (Advisor: Sumin Han, Dongman Lee) *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 **Daejeon, South Korea**
Software Engineering Intern *Aug. 2022 – Dec. 2022*

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

Bank Of Wine **Daejeon, South Korea**
Software Engineering Intern *June. 2022 – Aug. 2022*

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

RedWit **Daejeon, South Korea**
Software Engineering Intern *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) **Daejeon, South Korea**

TA, Deep Reinforcement Learning and Game AI (CS492)	Mar. 2024 – June. 2024
TA, Hana Bank-KAIST Digital Warrior Program	Oct. 2021 – June. 2022
TA, Korean for International Students (HSS193, HSS586)	Mar. 2022 – Dec. 2022
TA, Korean Camp for International Students	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
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

Leadership Experience

Google ExploreCSR   **Daejeon, South Korea**
Student Committee   Sep. 2023 - Aug. 2024

Certified Korean Red Cross lifeguard   **Daejeon, South Korea**
                                                            Jan. 2023 – Present

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