Seokki Lee

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Education

MS/Ph.D of Artificial Intelligence *Gwangju Institute of Science and Technology*
MS/Ph.D integrated degree program *August 2023 – Present*

Research Field: System-2 Reasoning, Human-like Reasoning, Cognitive Science, Neuro-symbolic, Knowledge Graph

Bachelor of Information Science and Engineering *Ritsumeikan University*
Bachelor's degree program *April 2019 – March 2023*

Major: Information Science and System Engineering
Thesis: LiDAR data-based pedestrian orientation recognition with the aid of super-resolution GAN
Final GPA: 4.24/5.00

Work Experience

Happy ARC Day Event Organizer, Master of Ceremony *February 2024*
Data Science Lab, AI Graduate School, GIST *Gwangju, Korea*

Abstract Reasoning Corpus dataset solving event held by Data Science Lab. Led the entire event with 50 participants and got an average of 9.5 points out of 10 for satisfaction and quality.

Educational Supporter *September 2022 – January 2023*
Ritsumeikan University *Shiga, Japan*

Supported the instructor in the Embedded Systems course by answering students' occasional questions outside of class and checking assignments and test results.

Publications

Abductive Symbolic Solver on Abstraction and Reasoning Corpus *Aug 2024*
M. Lim*, S. Lee*, L. Woletemaryam*, S. Kim *Oral Presented at LNSAI@IJCAI 2024*

Abstraction and Reasoning Corpus is known to be a challenging task for current large models to solve. This paper proposes a symbolic solver that resembles a human-like solving process with knowledge graphs and predefined domain-specific languages.

O2ARC 3.0: A Platform for Solving and Creating ARC Tasks *February 2024*
S. Shim, D. Ko, H. Lee, S. Lee, D. Song, S. Hwang, S. Kim, S. Kim *Demo Presented at IJCAI 2024*

To analyze human traces of solving the Abstraction and Reasoning Corpus, this paper proposes a demo with unit movements, gamification factors, and task-creator tools.

Reasoning Abilities of LLMs: In-Depth Analysis on the Abstraction and Reasoning Corpus *March 2024*
S. Lee, W. Shim, D. Shin, W. Seo, J. Park, S. Lee, S. Hwang, S. Kim, S. Kim *Accepted at ACM-TIST*

To measure the intelligence of an AI, three experiments regarding logical coherence, compositionality, and productivity of the Large Language Model using Abstraction and Reasoning Corpus have been conducted.

MC-LARC Benchmark to Measure LLM Reasoning Capability *June 2023*
D. Shin, S. Hwang, S. Lee, Y. Kim, S. Kim *KSC 2023, Busan, Korea*

Various approaches, including the use of large language models, have been proposed to challenge the Abstraction and Reasoning Corpus benchmark. However, these models frequently face difficulties in replicating human-biased movements. This paper introduces MC-LARC, a novel dataset, to evaluate their reasoning capabilities by transforming task formats into a multi-choice framework based on grid descriptions.

Pedestrian Orientation Estimation based on Super-Resolution of LiDAR Data *January 2023*
S. Lee, Y. Gu, I. Goncharenko, S. Kamijo *ICCE 2023, Las Vegas, Nevada, USA*

Pedestrian Orientation Estimation tasks with the data collected with LiDAR sensor. Image Super-resolution technique applied 2D represented and pedestrian segmented data as an input of the classifier model. Comparison of the input and output of the super-resolution implies the enhancement of the performance.