Multimodal Algorithmic Reasoning Workshop (MAR-NeurIPS 2024)

December 14 or 15th, 2024, Vancouver

Held in conjunction with NeurIPS 2024

https://marworkshop.github.io/neurips24/

CALL FOR CONTRIBUTIONS

Large deep learning based AI frameworks have been increasing in their data modeling abilities at an ever more vigor in recent times, with compelling applications emerging frequently, many of which may even appear to challenge human intelligence. Yet despite such impressive performances, there remain open questions about whether these models include the foundations of general intelligence, or whether they perform these tasks without human-like understanding. This necessitates development of better tools for assessing these models in tandem with developing the models themselves.

In this workshop, we plan to gather researchers working in neural algorithmic learning, multimodal reasoning, and cognitive models of intelligence to showcase their cutting-edge research, discuss the latest challenges, as well as bring to the forefront problems in perception and language modeling that are often overlooked but are pivotal in achieving true artificial general intelligence. An emphasis is on the emerging topic of multimodal algorithmic reasoning, where a reasoning agent is required to automatically deduce new algorithms/procedures for solving real-world tasks, e.g., algorithms that use multimodal foundational models for analysis, synthesis, and planning, new approaches towards solving challenging vision-and-language mathematical (Olympiad type) reasoning problems, deriving winning strategies in multimodal games, procedures for using tools in robotic manipulation, etc. We hope to dive deep into this exciting topic at the intersection of theory, multimodal machine learning architectures, and cognitive science to understand what we have achieved thus far in machine intelligence and what we are lacking in relation to the human way of thinking – through talks from outstanding researchers and faculty that could inspire the audience to search for the missing rungs on the ladder to true intelligence.

IMPORTANT DATES & DETAILS

Submission deadline: Friday, Aug 30 AoE

(Optional) Rebuttal starts: Sept 26

Rebuttal due: Sept 27 AoE

Final decision notification: Oct 9

Camera-ready: Nov 1

TOPICS

We invite submissions of high-quality research papers in the topics related to multimodal algorithmic reasoning. The topics for MAR-NeurIPS 2024 include, but are not limited to:

* Neural algorithmic reasoning
* Multimodal large language models
* Large language models and Cognition
* Large language models and algorithmic reasoning
* Shortcomings in AI models
* Large language models, neuroscience, and vision
* Multimodal machine cognition and learning
* Foundation models of intelligence, including vision, language, and other modalities
* Artificial general intelligence / general-purpose problem solving architectures
* Neural architectures for solving vision & language or language-based IQ puzzles
* Embodiment and AI
* Functional and algorithmic / procedural learning in vision
* Abstract multimodal reasoning, e.g., using sketches, diagrams, etc.
* Perceptual reasoning and decision making
* New vision-and-language abstract reasoning tasks and datasets
* Vision-and-language applications

SUBMISSION INSTRUCTIONS

We are inviting submissions of original and previously unpublished works, shorter versions of published papers at other venues, or shorter versions of papers submitted to the NeurIPS 2024 main conference.

* All submissions are handled via the workshop's CMT website: https://cmt3.research.microsoft.com/MARNIPS2024.
* Submissions should be made in PDF format and must follow the MAR 2024@NeurIPS submission style provided here: https://marworkshop.github.io/neurips24/mar24_neurips_latex_template.zip.
* Original and previously unpublished paper submissions should not exceed **9 pages** in length (excluding references).
* Resubmission of previously published papers or papers submitted to the main conference must be limited to a maximum of **4 pages** in length (excluding references).
* Authors may upload an optional Appendix, containing additional details, proofs, videos, images, etc. in a separate zip file (with a max of 50MB in size); the deadline for submitting these supplementary materials is the same as that for the main paper.
* All submissions should maintain author anonymity and should abide by the NeurIPS conference guidelines for double-blind review.

* Accepted papers will be presented as either an oral, spotlight, or poster presentation. At least one author of each accepted submission must present the paper at the workshop **in-person**.
* Presentation of accepted papers at our workshop will follow the same policy as that for accepted papers at the NeurIPS main conference.
* Accepted papers will be made publicly accessible on the workshop website shortly after the camera-ready deadline, but will not have any archival proceedings.

WORKSHOP ORGANIZERS

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