Yu-Zhe Shi

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Research Focus

Human-machine collaboration, coordination, and communication with cognitive science basis.

Degrees

B.Eng., Huazhong University of Science and Technology. *2022*, P. R. China.
ACM Elite Program in Computer Science and Engineering, advisor: Drs. Hai Jin and Kun He.
Dissertation: Modeling the prior of goals and constraints for human problem-solving, advisor: Dr. Yixin Zhu.

Academic Positions

Institute for Artificial Intelligence, Peking University. *2022 – present*, P. R. China.
Staff Research Engineer, Center for Computational Cognitive Science, with Drs. Yixin Zhu and Song-Chun Zhu.

National Key Laboratory of General Artificial Intelligence. *2021 – 2022*, P. R. China.
Undergraduate Research Assistant, Commonsense Reasoning Lab, with Drs. Yixin Zhu and Song-Chun Zhu.

Department of Computing, Imperial College London. *2019 – 2020*, UK.
Undergraduate Research Assistant, Inductive Logic Programming Group, with Dr. Wang-Zhou Dai.

Selected Publications

Refereed Conference Proceedings

Shi, Y.-Z., Xu, M., Hopcroft, J. E., He, K., Tenenbaum, J. B., Zhu, S.-C., Wu, Y. N., Han, W., and Zhu, Y. (2023d). On the complexity of Bayesian generalization. In *Proceedings of the 40th International Conference on Machine Learning*, volume 202 of *Proceedings of Machine Learning Research*, pages 31389–31407. PMLR.

Shi, Y.-Z., Li, S., Niu, X., Xu, Q., Liu, J., Xu, Y., Gu, S., He, B., Li, X., Zhao, X., Zhao, Z., Lyu, Y., Li, Z., Liu, S., Qiu, L., Ji, J., Ruan, L., Ma, Y., Han, W., and Zhu, Y. (2023b). PersLEARN: Research training through the lens of perspective cultivation. In *Proceedings of the 61st Annual Meeting of the Association for Computational Linguistics (Volume 3: System Demonstrations)*, pages 11–30. Association for Computational Linguistics.

Refreed Journals (In Preparation)

Shi, Y.-Z., Hou, H., Wen, H., Zhang, C., Dai, W.-Z., Ho, M. K., Yang, Y., and Zhu, Y. (2023a). Abductive task abstractions in physical problem-solving without object-level prior. *Machine Learning*. In Minor Revision.

Shi, Y.-Z., Muggleton, S. H., and Dai, W.-Z. (2023c). Object invention for abductive knowledge induction in the open world. *Machine Learning*. In Minor Revision.

Preprints

Shi, Y.-Z., Xu, M., Han, W., and Zhu, Y. (2022b). To think inside the box, or to think out of the box? Scientific discovery via the reciprocation of insights and concepts. *arXiv preprint arXiv:2212.00258*.

Shi, Y.-Z., Hou, H., Wen, H., Zhang, C., Ho, M. K., Yang, Y., and Zhu, Y. (2022a). Semantics emerge from solving problems given abstract prior. *Cognitive Science: ProbSol Concept Paper*.

Selected Honors

Outstanding Graduation Dissertation. *2022*, Ministry of Education, P. R. China.
For the contribution on computational modeling, in 1 % of all thesis-based senior undergrads nationwide.

National Scholarship. *2019*, Ministry of Education, P. R. China.
For outstanding academic performances, in 0.1 % of all undergrads nationwide.

Selected Open-sourced Projects

Awesome AGI & CoCoSci. *2020 – present*, GitHub.
A curated resource hub for artificial general intelligence and computational cognitive sciences, **170+ Stars**.