Yu-Zhe Shi

Email: yu.zhe.s.shi@gmail.com | Website: https://yuzheshi.github.io/ | GitHub: https://github.com/YuzheSHI

Degrees

B.Eng. *magna cum laude*, Huazhong University of Science and Technology. *2022*, Wuhan, 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.

Career

Institute for AI, Peking University. *2022 – present*, Beijing, P. R. China.
Assistant Staff Researcher, with Drs. Yixin Zhu and Song-Chun Zhu.

Department of Statistics, UCLA. *2021 – present*, Los Angeles, CA.
Research Associate, Computational Modeling, with Dr. Ying Nian Wu.

Beijing Institute for General AI. *2021 – 2022*, Beijing, P. R. China.
Undergraduate Research Assistant, Computation and Commonsense Lab, with Dr. Song-Chun Zhu.

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

Pre-print Articles

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., Xu, M., Hopcroft, J. E., He, K., Tenenbaum, J. B., Zhu, S.-C., Wu, Y. N., Han, W., and Zhu, Y. (2022c). On the complexity of bayesian generalization. *arXiv preprint arXiv:2211.11033*

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

Tutorial Articles

Shi, Y.-Z. and Wu, Y. N. (2022). Generative Modeling Explained. In *Statistical Machine Learning Tutorials*. Department of Statistics, UCLA, Summer 2022 edition

Open-sourced Projects

Awesome AGI & CoCoSci. *2020 – present*, GitHub.
A curated list for artificial general intelligence and computational cognitive sciences, **100+ Stars**.

Industrial Projects

AutoBio ISA. *2022 – present*, Institute for AI Industry Research, Tsinghua University.
Team lead of the AutoBio Programming Language, a PL that executes bio-experiment protocols automatically.

PersLEARN.com. *2022 – present*, PersLEARN.
Project lead of PersLEARN.com, a platform that visualizes and synthesizes diverse perspectives in science.

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.

Outstanding Undergraduate Researcher. *2021*, Ministry of Education, P. R. China.
For distinctive progress in investigating abduction, in 5 % of all candidates.

National Scholarship. *2019*, Ministry of Education, P. R. China.
For outstanding academic performances, in 0.2 % of all undergrads nationwide.

Services

Co-founder, Learners' Engineering and Research Network (LEARN Lab). *2019 – Present*, P. R. China.
LEARN is a platform for integrating resources for undergraduate research and engineering.

Microsoft Learn Student Ambassador. *2019 – 2022*, Microsoft Research Asia, Beijing, P. R. China.
Co-organizing technical events with Microsoft Student Club.

Selected Invited Talks

Seminar. *2022*, McGovern Institute for Brain Research at Beijing Normal University, Beijing, P. R. China.
Rationality: A gold standard for understanding Bayesian generalization.
Host: Dr. Yanchao Bi.

Seminar. *2022*, Beijing Institute for General AI, Beijing, P. R. China.
Why perspective matters? On the quest of human-centered metascience.
Host: Dr. Yixin Zhu.

Seminar. *2021*, Beijing Institute for General AI, Beijing, P. R. China.
A Rough Introduction to Abduction: Formulation, Cognitive Basis, and Potential Research Directions.
Host: Dr. Yixin Zhu.

Machine Learning Seminar. *2020*, Imperial College London, London, UK.
A Technical Tutorial on Program Synthesis.
Host: Dr. Wang-Zhou Dai.

Student Ambassadors Seminar. *2020*, Microsoft Research Asia, Beijing, P. R. China.
What is Abduction? A Comprehensive Review in Cognitive Sciences and AI.
Host: Ms. Sophie Wu.

Grants and Research Contacts

Educational Research for Tong Class. *2022 – 2023*, Institute for AI, Peking University, P. R. China.
Optimizing research training plan for Tong Class undergrads, $141,470, Key Personnel (PI: Dr. Yixin Zhu).

National Undergraduate Innovation Grants. *2020 – 2022*, Ministry of Education, P. R. China.
Abduction-based Open-World Learning with Predicate Invention (No. 10487232), $10,000, Student PI.

Collaborators

Dr. Wang-Zhou Dai, Associate Professor, Nanjing University, *Since 2020*.

Dr. Yixin Zhu, Assistant Professor, Peking University, *Since 2021*.

Dr. Song-Chun Zhu, Chair, Beijing Institute for General AI, *Since 2021*.

Dr. Josh Tenenbaum, Professor, MIT, *Since 2021*.

Dr. Ying Nian Wu, Professor, UCLA, *Since 2021*.

Dr. Wenjuan Han, Principal Research Scientist, Beijing Institute for General AI, *Since 2022*.

Dr. Kun He, Professor, Huazhong University of Science and Technology, *Since 2022*.

Dr. John Hopcroft, Professor, Cornell University, *Since 2022*.

Dr. Mark Ho, Assistant Professor, Stevens Institute of Technology, *Since 2022*.

Dr. Yanchao Bi, Professor, McGovern Institute for Brain Research at Beijing Normal University, *Since 2022*.