Zhaonan Li

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Homepage • Google Scholar
Tempe, AZ

Research interests: Post-training of large language and vision-language models, including reinforcement learning and distillation for reasoning, compute-efficient training and inference, and robust multimodal reasoning.

Education

2024–2028* **Ph.D.** in Computer Science, Arizona State University
2021–2023 **M.S.** in Computer Science, Columbia University
2017–2021 **B.S.** in Computer Science and Applied Mathematics, Brandeis University, *summa cum laude*

Research & Industry Experience

Summer 2026 Applied Research Intern, Capital One (Mentor: Dr. William Campbell)
Studied token-efficient reinforcement learning with verifiable rewards (RLVR); designed adaptive decoding schedules that widen candidate-token support during rollout sampling. [WS2]

2024–present Research Assistant, ARC Lab, Arizona State University (Advisor: Prof. Ben Zhou)
• **Token-level credit assignment:** a lightweight predictor of which tokens decide a model's answer, used for small-to-large model routing that outperforms entropy-based routing; extending it to distillation and RL. [P3]
• **Robust multimodal reasoning:** decoupling perception from reasoning with RL, VLM self-improvement, and diagnostic benchmarks. [C1, WS1, P1, P2, P4]
• **Alignment and reasoning consistency** (contributor). [C2, C3, C5, P5]

2023–2024 Research Intern, AI, Learning and Intelligent System Group, National Renewable Energy Laboratory (NREL) (Mentor: Dr. Patrick Emami)
Developed SysCaps, LLM-enabled language interfaces for simulation surrogates of complex physical systems; co-authored an ICLR 2025 paper (equal contribution). [C4]

2022–2023 Research Assistant, Creative Machines Lab, Columbia University (Advisor: Prof. Hod Lipson)
Developed meta-learning methods for binary auxiliary label representations in image classification, which improved accuracy over single-task baselines. [Technical Report]

2020–2021 Research Assistant, Brandeis University (Advisor: Prof. Hongfu Liu)

*Expected.

Proposed Zero-Knowledge Zero-Shot Learning (ZK-ZSL), a visual category discovery task that requires discovering unseen categories and their semantics without prior knowledge, and built a deep clustering framework to address it. [P6]

Summer 2018 Software Development Intern, IBM

Publications

Google Scholar

* → Equal contribution

Peer-reviewed Conference Proceedings

C1. Jojic, M., **Li, Zhaonan** & Zhou, B. *Don't Just Look, Intervene: Perturbation Based Region Labeling for VQA Images* in *Findings of the Association for Computational Linguistics: EMNLP 2026* (2026).

C2. Ye, X., **Li, Zhaonan**, Dineen, J., Lu, S., Shrivastava, S., Ahuja, A., Shen, M., Xu, Z. & Zhou, B. *Consistency-Driven Learning for Proof-Carrying Reasoning* in *Proceedings of AACL-IJCNLP 2026* (2026).

C3. Dineen, J., RRV, A., Liu, Q., Xu, Z., Ye, X., Shen, M., **Li, Zhaonan**, Lu, S., Baral, C., Chen, M. & Zhou, B. *QA-LIGN: Aligning LLMs through Constitutionally Decomposed QA* in *Findings of the Association for Computational Linguistics: EMNLP 2025* (2025), 20619–20642.

C4. Emami, P., **Li, Zhaonan***, Sinha*, S. & Nguyen*, T. *SysCaps: Language Interfaces for Simulation Surrogates of Complex Systems* in *Proceedings of the Thirteenth International Conference on Learning Representations (ICLR 2025)* (2025).

C5. Xu*, Z., Shen*, M., Dineen, J., **Li, Zhaonan**, Ye, X., Lu, S., RRV, A., Baral, C. & Zhou, B. *ToW: Thoughts of Words Improve Reasoning in Large Language Models* in *Proceedings of the 2025 Conference of the Nations of the Americas Chapter of the Association for Computational Linguistics: Human Language Technologies (NAACL 2025)* (2025), 3057–3075.

Peer-reviewed Workshop Papers & Presentations

WS1. **Li, Zhaonan**, Chickering, K. R., Li, B., Dineen, J., Ye, X., Xu, Z., Lu, S., Huang, Y., Shen, M., Nguyen, B., Pavuluri, J. A., Nguyen, M. S., Chavan, S., Le, N. M. T., Chen, M. & Zhou, B. *VisAnalog: A Diagnostic Suite for Visual Concept Transfer on Natural Images.* CVPR 2026 Workshop on Visual Concepts (non-archival); arXiv preprint arXiv:2605.23141. 2026. **Oral presentation**.

WS2. **Li, Zhaonan***, Cheng*, Z., Mishra*, A., Lee, C.-H., Patel, M., Sahu, S., Zhou, B. & Campbell, W. M. *Adaptive Decoding Methods for Token-Efficient Reinforcement Learning.* NeurIPS 2026 Workshop on Transitioning from Pre-training to Post-training; arXiv preprint arXiv:2610.25860. 2026.

Preprints & Working Papers

P1. **Li, Zhaonan** & Zhou, B. *Self-Improving Vision-Language Models through Decoupled Self-Questioning.* Under review at NAACL 2027. 2026.

P2. **Li, Zhaonan**[*], Lu[*], S., Wang, F., Dineen, J., Ye, X., Xu, Z., Liu, S., Cho, Y. M., Li, B., Chang, D., Nguyen, K., Yang, Q., Chen, M. & Zhou, B. *Decoupled Reasoning and Perception for Generalizable Visual Reasoning.* Under review at CVPR 2027; earlier version: arXiv preprint arXiv:2512.22183. 2026.

P3. **Li, Zhaonan**[*], Ye[*], X., Zhang, Y. & Zhou, B. *Beyond Entropy: Token-Level Routing via Answer Impact.* Under review at NAACL 2027. 2026.

P4. Nguyen, B., **Li, Zhaonan**, Nguyen, M. S., Chavan, S., Kumar, N., Nguyen, H. A., Vo, K. & Zhou, B. *How Well Do LLMs Reason with Noisy Evidence? An Active Visual Reasoning Benchmark.* Under review at NAACL 2027; arXiv preprint arXiv:2610.07751. 2026.

P5. Ye, X., Dineen, J., **Li, Zhaonan**, Xu, Z., Chen, W., Lu, S., Huang, Y., Shen, M., Tran, P., Yum, J.-E. I., Khan, M. A., Afzal, M. U., Riaz, I. B. & Zhou, B. *Evaluating Medical LLMs by Levels of Autonomy: A Survey Moving from Benchmarks to Applications.* arXiv preprint arXiv:2510.17764. 2025.

P6. **Li, Zhaonan** & Liu, H. *Zero-Knowledge Zero-Shot Learning for Novel Visual Category Discovery.* arXiv preprint arXiv:2302.04427. 2023.

Awards & Honors

2020	MRSEC Summer Material Undergraduate Research Fellowship ($5000)
2019	ACM-ICPC Northeast North America Regional Final, 9th place
2017-2021	Dean's List (all semesters), Brandeis University

Teaching

Arizona State University

Fall 2025, Spring 2026	Teaching Assistant, Introduction to Theoretical Computer Science (CSE 355)
Spring 2025, Fall 2025	Teaching Assistant, Introduction to NLP (CSE 476)
Fall 2024, Spring 2025	Teaching Assistant, Programming and Data Structures (CSE 205)

Mentoring

2025–	Marko Jojic, Arizona State University (now Ph.D. student at UC San Diego) [C1]
2025–	Bach Nguyen, Arizona State University [P4]

Skills

Programming: Python, C++, Java, MATLAB, Go, Bash, SQL.
ML & Deep Learning: PyTorch, TensorFlow, NumPy, Pandas, scikit-learn.
Training & Inference Frameworks: Hugging Face, vLLM, SGLang, verl, rLLM, torchtune.
Systems & MLOps: Linux, Git, Docker, Slurm, AWS.