SHI CHEN

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EDUCATION

University of California, Berkeley — Aug. 2023 - Now
Post-doc in Neuroscience
Advisor: Dr. Doris Tsao

University of Minnesota, Twin Cities — Sep. 2018 - Jun. 2023
P.h.D in Computer Science
Advisor: Dr. Qi (Catherine) Zhao

University of Minnesota, Twin Cities — Sep. 2015 - Jun. 2017
M.S. in Computer Science

Wuhan University — Sep. 2011 - Jun. 2015
B.S. in Computer Science

RESEARCH INTEREST

Computer Vision, Visual Neuroscience, Machine Learning, Human Vision, Nature Language Processing

PUBLICATION

- Shi Chen, Ming Jiang and Qi Zhao. What Do Deep Saliency Models Learn about Visual Attention? Conference on Neural Information Processing Systems (NeurIPS), 2023.

- Yifeng Zhang, Shi Chen and Qi Zhao. Toward Multi-Granularity Decision-Making: Explicit Visual Reasoning with Hierarchical Knowledge. In IEEE International Conference on Computer Vision (ICCV), 2023.

- Shi Chen and Qi Zhao. Divide and Conquer: Answering Questions with Object Factorization and Compositional Reasoning. In Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2023.

- Shi Chen, Nachiappan Valliappan, Shaolei Shen, Xinyu ye, Kai Kohlhoff and Junfeng He. Learning from Unique Perspectives: User-aware Saliency Modeling. In Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2023.

- Shi Chen and Qi Zhao. REX: Reasoning-aware and Grounded Explanation. In Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2022.

- Jinhui Yang*, Xianyu Chen*, Ming Jiang, Shi Chen, Louis Wang and Qi Zhao. VisualHow: Multimodal Problem Solving. In Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2022.

- Shi Chen and Qi Zhao. Attention to Action: Leveraging Attention for Object Navigation. In British Machine Vision Conference (BMVC), 2021.

- Shi Chen*, Ming Jiang*, Jinhui Yang, and Qi Zhao. Attention in Reasoning: Dataset, Analysis, and Modeling. In IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), 2021.

- Shi Chen*, Ming Jiang*, Jinhui Yang, and Qi Zhao. AiR: Attention with Reasoning Capability. In European Conference on Computer Vision (ECCV), pp 91-107, 2020. (**Oral Paper, 2% acceptance rate**)

- Ming Jiang*, Shi Chen*, Jinhui Yang, and Qi Zhao. Fantastic Answers and Where to Find Them: Immersive Question-directed Visual Attention. In Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR), pp. 2977-2986, 2020.

- Shi Chen and Qi Zhao. Attention-based Autism Spectrum Disorder Screening with Privileged Modality. In IEEE International Conference on Computer Vision (ICCV), pp. 1181-1190, 2019.

- Shi Chen and Qi Zhao. Shallowing Deep Networks: Layer-wise Pruning based on Feature Representations. In IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), vol. 41, no. 12, pp. 3048-3056, 2019.

- Shi Chen and Qi Zhao. Boosted Attention: Leveraging Human Attention for Image Captioning. In European Conference on Computer Vision (ECCV), pp 72-88, 2018.

TALK

- "Attention with Reasoning Capability", presented at the European Conference on Computer Vision (ECCV), 2020.

- "Where to Look at: Visual Attention in Computer Vision and Mental Health", presented at the UMN department of computer science & engineering 50th anniversary research exhibit, 2019.

- "Towards Efficient Deep Neural Networks", presented at UMN visual computing & AI seminar, 2018.

SERVICE

Reviewer:
CVPR (2019-2023); ICCV (2019-2023); ECCV (2018-2022); NeurIPS (2022-2023); AAAI (2020-2024); ICLR (2022-2024); ICML 2023; WACV (2021-2024); TNNLS (2019-Now); TMM (2021-Now); IJCV (2023-Now).

ACADEMIC EXPERIENCE

Tsao Lab, University of California, Berkeley   Aug. 2023 - Now
Visual Neuroscience

- New journey ahead!

Visual Information Processing Lab, University of Minnesota   May. 2017 - Jun. 2023
Computer Vision, Machine Learning, Human Vision, Vision and Language

- Proposed new methods for modeling visual attention throughout the continuous decision-making process.

- Designed and conducted human experiments to study the visual behavioral patterns during visual reasoning tasks with perspective and 360° immersive views.

- Designed a novel deep learning algorithm for interpretable and generalizable autism spectrum disorder screening with multi-modal visual behavioral data.

- Developed new methods that incorporate human attention with machine attention for enhanced multi-modal understanding.

- Designed a new family of multi-modal explanations for estimating machines' visual reasoning capabilities.

- Developed a new method for reducing the computational overhead of deep neural networks with feature diagnosis and layer-wise pruning.

- Developed visual navigation agents that generate action planning based on attention patterns.

Autonomous Driving Lab, Wuhan University   Sept. 2013 - Apr. 2015
Computer Vision in Intelligent Transportation System

- Built an advanced driver assistance system with pedestrian recognition and lane departure warning. The self-driving car equipped with the system is displayed at Auto China 2014.

- Designed a new road marking recognition system based on geometric features.

INDUSTRIAL EXPERIENCE

Google Research

May. 2022 - Aug. 2022

- Research Intern. Mentor: Junfeng He

TEACHING EXPERIENCE

Guest Lecturer

- Machine Learning Fundamentals, Fall 2022.

- Introduction to Machine Learning, Spring 2021.

Teaching Assistant

- Machine Learning Fundamentals, Fall 2021/Spring 2022.

- Introduction to Machine Learning, Fall 2019/Fall 2020/Spring 2021.

- Algorithms and Data Structures. Spring, 2019.

SKILL

Programming Language: Python, Matlab, Linux shell

Tools: Pytorch, Tensorflow, Keras, Opencv, Unix/Linux, Git, Atom, Scikit-Learn.