Yan **Luo**

Ph.D. Candidate

Department of Computer Science & Engineering, University of Minnesota

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Education

University of Minnesota Twin Cities — *Minnesota, USA*

Ph.D. in Computer Science & Engineering — *Jan. 2017 - Jun. 2022 (expected)*

Advisor: Prof. Qi Zhao

National University of Singapore — *Singapore, Singapore*

Ph.D. Student in Computer Engineering — *Jul. 2015 - Jan. 2017*

Advisor: Prof. Qi Zhao

Xi'an University of Science and Technology — *Shaanxi, China*

B.S. in Computer Science — *Sep. 2004 - Jul. 2008*

Research Interests

My research interests lie in the areas of computer vision and machine learning. Particularly, I'm interested in (1) how to improve the generalization and transferability of the learning process when the context varies, e.g., in a continual learning setting, and (2) how to assess the downstream effects of machine intelligence's generalizability, e.g., trustworthiness of predictions, for the safe and effective use of AI models.

Publications

Yan Luo, Yongkang Wong, Mohan S. Kankanhalli, and Qi Zhao. "Learning to Predict Trustworthiness with Steep Slope Loss." In Advances in Neural Information Processing Systems, 2021.

Yan Luo, Yongkang Wong, Mohan S. Kankanhalli, and Qi Zhao. "n-Reference Transfer Learning for Saliency Prediction." In European Conference on Computer Vision, pp. 502-519. Springer, Cham, 2020.

Yan Luo, Yongkang Wong, Mohan Kankanhalli, and Qi Zhao. "Direction Concentration Learning: Enhancing Congruency in Machine Learning." IEEE Transactions on Pattern Analysis and Machine Intelligence (2019).

Yan Luo, Yongkang Wong, Mohan Kankanhalli, and Qi Zhao. "$\mathcal{G}$-Softmax: Improving Intraclass Compactness and Interclass Separability of Features." IEEE Transactions on Neural Networks and Learning Systems 31, no. 2 (2019): 685-699.

Yan Luo, Ming Jiang, and Qi Zhao. "Visual Attention in Multi-Label Image Classification." In Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition Workshops, pp. 0-0. 2019.

Yan Luo, Xavier Boix, Gemma Roig, Tomaso Poggio, and Qi Zhao. "Foveation-Based Mechanisms Alleviate Adversarial Examples." arXiv preprint arXiv:1511.06292 (2015).

Yan Luo, Yongkang Wong, and Qi Zhao. "Label Consistent Quadratic Surrogate Model for Visual Saliency prediction." In Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition, pp. 5060-5069. 2015.

Yan Luo, Ming Jiang, Yongkang Wong, and Qi Zhao. "Multi-Camera Saliency." IEEE Transactions on Pattern Analysis and Machine Intelligence 37, no. 10 (2015): 2057-2070.

Academic Service

Reviewer CVPR 2019, ICCV 2019, AAAI 2020, CVPR 2020, ECCV 2020, NeurIPS 2020, WACV 2021, AAAI 2021, CVPR 2021, ICML 2021, ICCV 2021, NeurIPS 2021, WACV 2022, AAAI 2022, CVPR 2022, ICLR 2022, ICML 2022, TNNLS (2017-Now)

Experience

CoTwins Lab at University of Minnesota
MN, USA

Research Assistant (Supervisor: Prof. Scott Vrieze and Prof. Qi Zhao) *Dec. 2018 - Jun. 2022*

- Developed components of the CoTwins system to meet the requirements for the research.
- Maintained the integrity of research data.

Interactive & Digital Media Institute at NUS
Singapore, Singapore

Research Assistant (Supervisor: Prof. Mohan Kankanhalli and Prof. Qi Zhao) *Mar. 2013 - Jan. 2017*

- Proposed and developed a novel and general method to predict important content in visual scenes from multiple sources (e.g., videos/images).
- Designed and conducted human experiments to see how people allocate their attention with multiple sources, and compare results with those of one source as in the conventional experimental setting.
- Developed algorithms to extract features and compute key eye parameters for clinical applications.

SmartClouder Inc.
Beijing, China

R&D Engineer *Nov. 2010 - Mar. 2013*

- Developed a decentralized distributed system that performed better than the NAS product of NetApp Inc. This project addressed the shortcomings (at that time) of the existing commercial NAS system including disruption of the client side service to reconfigure when the storage infrastructure was upgraded or expanded, the expensive price of commercial NAS product (NetApp FAS3240 costs 450,000 RMB) and the remarkable performance decline when increasing the number of files.
- Built a virtualization system including all functionalities of Amazon EC2 based on KVM virtualization infrastructure and improved its security by applying the VLan technique.

TeleNav Inc.
Beijing, China

R&D Engineer *Jul. 2008 - Nov. 2010*

- Developed algorithms to improve two aspects in traditional route planning engines - increased the performance in long distance routing (e.g., from Los Angeles to New York) and improved the quality in some particular road networks (e.g., two highways that are parallel at the beginning but intersect at the end). Our work outperforms other commercial geospatial engines in computing at that time.
- Developed a navigation system for mobile device users who cannot connect to a cell phone network (e.g., GSM or CDMA) or where the location is not covered by the network. By effectively addressing the memory limitation, this work was a pioneering work in navigation with mobile devices (where computational resources are highly constraint at that time).

Teaching

Teaching Assistant

CSCI 4511W: Introduction to Artificial Intelligence, Spring 2018
CSCI 4511W: Introduction to Artificial Intelligence, Fall 2018
CSCI 4511W: Introduction to Artificial Intelligence, Spring 2019
CSCI 5481: Computational Techniques for Genomics, Fall 2019
CSCI 5801: Software Engineering I, Spring 2020
CSCI 5801: Software Engineering I, Spring 2021
CSCI 4707: Practice of Database Systems, Fall 2021
CSCI 5801: Software Engineering I, Spring 2022

Skills

Languages	Cantonese, Mandarin, English
Programming	Python, Lua, Matlab, Java, C/C++
Deep Learning Libraries	PyTorch, TensorFlow, Torch, Caffe
Working OS	Linux (Ubuntu/Linux Mint/MX Linux/Manjaro/Debian/CentOS/Elementary), MacOS, Windows
Supercomputing	University of Minnesota Supercomputing Institute (Slurm), National Supercomputing Centre Singapore (PBS Pro)
Other	Built 4x4-GPU servers from parts for Visual Information Processing Lab at UMN