Jiayi Shen, Ph.D. Student

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Professional Summary

As a Ph.D. candidate at the University of Amsterdam, my research primarily revolves around **multi-task learning**. To address the data-insufficiency problem in this field, I propose various models based on: probabilistic modeling, graphical learning, and meta-learning, including neural processes. My current focus is on multi-task optimization for dense prediction tasks. During my Master's project, I gained experience in transfer learning and zero-shot learning.

Education

2020 – · · · · **Ph.D. student in Computer Science, University van Amsterdam, Netherlands.**
Project title: *Multi-task learning.*

2017 – 2020 **M.S. in Electronic information Engineering, Beihang University, China.**
Thesis title: *Spericial zero-shot learning.*

2013 – 2017 **B.S. in Electronic information Engineering, Beihang University, China.**
Thesis title: *Feature adaptation and augmentation for cross-scene hyperspectral image classification.*

Research Publications

1. **Shen, J.**, Xiao, Z., Zhen, X., Snoke, C., & Worring, M. (2022). Association graph learning for multi-task classification with category shifts. *Advances in Neural Information Processing Systems*. Retrieved from https://arxiv.org/abs/2210.04637
2. Wang, H., **Shen, J.**, Liu, Y., Gao, Y., & Gavves, E. (2022). Nformer: Robust person re-identification with neighbor transformer. *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition*. Retrieved from https://arxiv.org/abs/2204.09331
3. Zhang, L., Du, Y., **Shen, J.**, & Zhen, X. (2022). Learning to learn with variational inference for cross-domain image classification. *IEEE Transactions on Multimedia*. Retrieved from https://ieeexplore.ieee.org/document/9737135
4. **Shen, J.**, Xiao, Z., Zhen, X., & Zhang, L. (2021). Spherical zero-shot learning. *IEEE Transactions on Circuits and Systems for Video Technology*. Retrieved from https://ieeexplore.ieee.org/document/9381246
5. **Shen, J.**, Zhen, X., Worring, M., & Shao, L. (2021). Variational multi-task learning with gumbel-softmax priors. *Advances in Neural Information Processing Systems*. Retrieved from https://arxiv.org/abs/2111.05323
6. Xiao, Z., **Shen, J.**, Zhen, X., Shao, L., & Snoek, C. (2021). A bit more bayesian: Domain-invariant learning with uncertainty. *International Conference on Machine Learning*. Retrieved from https://arxiv.org/abs/2105.04030

7 **Shen**, **J.**, Wang, H., Zhang, A., Qiu, Q., Zhen, X., & Cao, X. (2020). Model-agnostic metric for zero-shot learning. *Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision*. Retrieved from https://ieeexplore.ieee.org/document/9093282

8 Zhang, A., **Shen**, **J.**, Xiao, Z., Zhu, F., Zhen, X., Cao, X., & Shao, L. (2019). Relational attention network for crowd counting. *Proceedings of the IEEE/CVF international conference on computer vision*. Retrieved from https://ieeexplore.ieee.org/document/9010829

9 Zhang, A., Yue, L., **Shen**, **J.**, Zhu, F., Zhen, X., Cao, X., & Shao, L. (2019). Attentional neural fields for crowd counting. *Proceedings of the IEEE/CVF international conference on computer vision*. Retrieved from https://ieeexplore.ieee.org/document/9009565

10 **Shen**, **J.**, Cao, X., Li, Y., & Xu, D. (2018). Feature adaptation and augmentation for cross-scene hyperspectral image classification. *IEEE Geoscience and Remote Sensing Letters*. Retrieved from https://ieeexplore.ieee.org/document/8291065

Skills

Languages — Reading, writing and speaking competencies for English, Mandarin Chinese.

Coding — Python, PyTorch, LaTeX

Awards

2020 — **National scholarship for Postgraduates**, China.

Outstanding Postgraduates, Beihang University.

2017 — **Outstanding Graduates**, Beihang University.

Professional Services

PhD Program
- Ph.D. Students of European Laboratory for Learning and Intelligent Systems (ELLIS), 2022.

Journal Reviewer
- IEEE Transactions on Pattern Analysis and Machine Intelligence, 2022.
- IEEE Transactions on Image Processing, 2018.

Conference Reviewer
- IEEE International Conference on Computer Vision, 2023.
- IEEE/CVF Conference on Computer Vision and Pattern Recognition, 2023.
- Association for the Advancement of Artificial Intelligence, 2021.
- IEEE/CVF Conference on Computer Vision and Pattern Recognition, 2020.