

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 Du, Y., **Shen, J.**, Zhen, X., & Snoek, C. G. M. (2023). Superdisco: Super-class discovery improves visual recognition for the long-tail. *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition*. Retrieved from  <https://arxiv.org/abs/2304.00101>
- 2 **Shen, J.**, Xiao, Z., Zhen, X., Snok, 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>
- 3 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>
- 4 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>
- 5 **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>
- 6 **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>

- 7 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>
- 8 **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>
- 9 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>
- 10 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>
- 11 **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  Advances in Neural Information Processing Systems, 2023.
-  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.