

Shen-Huan LYU | Ph.D. Candidate

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Education

2017 - 2022: Nanjing University (NJU)

Ph.D. in Machine Learning & Data Mining

Department of Computer Science & Technology

Supervisor: Prof. Zhi-Hua Zhou

2013 - 2017: University of Science and Technology of China (USTC)

B.Sc. in Statistics

College of Management

GPA: 3.71/4.30, ranking 7/26

Research Interests

My current research interests mainly include Machine Learning and Data Mining. More specifically, I am interested in the following topics:

- **Deep Forest Theory**
- **Deep Neural Network Theory**
- **Open Environment Machine Learning**

Publications

*: Equal Contribution

Conference Papers.....

[1]: **Shen-Huan Lyu**, Liang Yang, and Zhi-Hua Zhou. A Refined Margin Distribution Analysis for Forest Representation Learning. In: **Advances in Neural Information Processing Systems 32 (NeurIPS'19)**, Vancouver, CA, 2019. **(CCF-A)**

[2]: Yi-He Chen*, **Shen-Huan Lyu***, and Yuan Jiang. Improving Deep Forest by Exploiting High-order Interactions. **Proceedings of the 21th IEEE International Conference on Data Mining (ICDM'21)**, Auckland, NZ, 2021.

[3]: **Shen-Huan Lyu**, Yi-Xiao He, and Zhi-Hua Zhou. Depth is More Powerful than Width in Deep Forest. **Submitted to Advances in Neural Information Processing Systems 35 (NeurIPS'22)**, in review, 2022. **(CCF-A)**

Journal Papers.....

[4]: **Shen-Huan Lyu**, Lu Wang, and Zhi-Hua Zhou. Improving Generalization of Neural Networks by Leveraging Margin Distribution. **Neural Networks (NEUNET'22)**, 151:48-60, 2022. **(JCR-Q1)**

[5]: **Shen-Huan Lyu**, Yi-He Chen, and Zhi-Hua Zhou. A Region-based Analysis for Feature Concatenation in Deep Forests. **Submitted to Chinese Journal of Electronics (CJE'22 in English)**, minor revision, 2022.

[6]: **Shen-Huan Lyu**, Yi-He Chen, and Zhi-Hua Zhou. Interaction Representations Based Deep Forest Method in Multi-Label Learning. **Submitted to Journal of Software (JOS'22 in Chinese)**, in review, 2022. **(CCF-A)**

Preprints.....

[7]: Yi-Xiao He, **Shen-Huan Lyu**, and Yuan Jiang. Interpreting Deep Forest through Feature Contribution and MDI Feature Importance. **Preprinted**.

[8]: Qin-Cheng Zheng, **Shen-Huan Lyu**, Shao-Qun Zhang, Yuan Jiang, and Zhi-Hua Zhou. GridCART: A CART with Convergence Guarantee. **Preprinted**.

[9]: Yi-Xiao He, Dan-Xuan Liu, **Shen-Huan Lyu**, Chao Qian, and Zhi-Hua Zhou. Multi-Class Imbalance Problem: A Multi-Objective Solution. **Preprinted**.

Academic Service

[1]: Reviewer for Conferences: AAAI'19, ECAI'19, PRICAI'19, CCML'19, IJCAI'20, NeurIPS'20, IJCAI'21, ICML'21, ICLR'21, IJCAI'22, ICML'22, NeurIPS'22.

[2]: Reviewer for Journals: Research, Neurocomputing, Transactions on Knowledge Discovery from Data (TKDD).

[3]: Volunteer to the 18th China Symposium on Machine Learning and Applications (MLA'20), Nanjing.

[4]: Volunteer to the 16th China Symposium on Machine Learning and Applications (MLA'18), Nanjing.

Honors and Awards

[1]: The Second Class Academic Scholarship in Nanjing University, Nanjing, 2020.

[2]: Artificial Intelligence Scholarship in Nanjing University, Nanjing, 2019.

[3]: Presidential Special Scholarship for first-year Ph.D. Student in Nanjing University, Nanjing, 2017.

[4]: The University Silver Prize Scholarship for Excellent Student in University of Science and Technology of China , Hefei, 2016.

[5]: The University Silver Prize Scholarship for Excellent Student in University of Science and Technology of China , Hefei, 2014.

Teaching Assistant

[1]: C++ Programming. (With Prof. Hao Hu; For Undergraduate Students, Spring, 2019)

[2]: LAMDA Machine Learning Summer Seminar. (For New Students in LAMDA, Summer, 2018)

[3]: Introduction to Machine Learning. (With Prof. Zhi-Hua Zhou; For Undergraduate Students, Spring, 2018)

[4]: LAMDA-1 Theory Seminar. (Topics: Forest Theory, Neural Network Theory, Generalization Theory, and Diversity; For Students in LAMDA-1, Spring, 2022)