Liyuan Gao

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https://liyuan-gao.github.io/

Research Interests

Explainable AI, Neuro-symbolic AI, Privacy-Preserving, Machine Learning, Deep Learning, Applications in Medical Informatics and Bioinformatics.

Education

Aug.2020 – present **Ph.D., Computer Science, Texa Tech University**

Aug.2016 – Jan.2019 **M.Sc., Computer Technology, University of Science and Technology Beijing**

Aug.2012 – Jun.2016 **B.S., Computer Science and Technology, Yanbian University**

Employment History

Sep.2021 – present **Teaching Assistant,** Texas Tech University

Jan.2019 – Jun.2021 **Engineer Assistant,** Institute of Software Chinese Academy of Sciences

Aug.2016 – Jun.2018 **Teaching Assistant,** University of Science and Technology Beijing

Research Publications

1. **L. Gao**, M. Zhang, and V. S. Sheng, "Enhancing transcription factor prediction through multi-task learning (student abstract)(accepted)," in *Proceedings of the AAAI Conference on Artificial Intelligence*, 2024.
2. J. Croft, **L. Gao**, O. Quintanar, V. Sheng, and J. Zhang, "Identification of cholangiocarcinoma (cca) subtype-specific biomarkers," *bioRxiv*, pp. 2023–08, 2023.
3. J. Croft, B. Grajeda, L. A. Aguirre, **L. Gao**, J. Abou-Fadel, *et al.*, "Whole-genome omics delineates the function of ccm1 within the cmpn networks," *bioRxiv*, pp. 2023–07, 2023.
4. J. Croft, O. Quintanar, **L. Gao**, V. Sheng, and J. Zhang, "Novel hepatocellular carcinomas (hcc) subtype-specific biomarkers," *bioRxiv*, pp. 2023–08, 2023.
5. **L. Gao**, K. Shu, J. Zhang, and V. Sheng, "Explainable transcription factor prediction with protein language models (accepted)," in *2023 IEEE International Conference on Bioinformatics and Biomedicine (BIBM)*, IEEE, 2023.
6. **L. Gao**, H. Zhan, A. Chen, and V. S. Sheng, "Towards fair and selectively privacy-preserving models using negative multi-task learning (student abstract)," in *Proceedings of the AAAI Conference on Artificial Intelligence*, vol. 37, 2023, pp. 16 214–16 215.
7. **L. Gao**, H. Zhan, and V. S. Sheng, "Mitigate gender bias using negative multi-task learning," *Neural Processing Letters*, pp. 1–16, 2023.
8. **L. Gao**, H. Zhan, H. Song, K. Zhang, and V. Sheng, "Word embedding explanation using automatic rule learning on text classification (submitted to ecir-2024)," 2023.
9. H. Zhan, **L. Gao**, K. Zhang, Z. Chen, and V. S. Sheng, "Defending the graph reconstruction attacks for simplicial neural networks," in *2023 IEEE 10th International Conference on Data Science and Advanced Analytics (DSAA)*, IEEE, 2023, pp. 1–9.

10 J. Zhang, J. Croft, **L. Gao**, and V. Sheng, "Machine learning uncovers ccm isoforms as transcription factors," 2023.

11 H. Wang, F. Yuan, **L. Gao**, R. Huang, and W. Wang, "Wear debris classification and quantity and size calculation using convolutional neural network," in *Cyberspace Data and Intelligence, and Cyber-Living, Syndrome, and Health: International 2019 Cyberspace Congress, CyberDI and CyberLife, Beijing, China, December 16–18, 2019, Proceedings, Part I 3*, Springer, 2019, pp. 470–486.

12 H. Wang, R. Huang, **L. Gao**, W. Wang, A. Xu, *et al.*, "Wear debris classification of steel production equipment using feature fusion and case-based reasoning," *ISIJ International*, vol. 58, no. 7, pp. 1293–1299, 2018.

Skills

Languages	Strong reading, writing and speaking competencies for English, Mandarin Chinese.
Coding	Python, C/C++, Matlab, R.
DL tools	Tensorflow, Pytorch.
Misc.	Academic research, teaching, training, etc.

Miscellaneous Experience

Awards and Achievements

2021	**ICDM 2021 student attendance award**.
2020-2023	**Distinguished Graduate Student Assistantship**, Texas Tech University.

Certification

2020	**CN Patent**. A wavefront restoration system based on generative adversarial network.
2018	**Software Copyright**. Wear Debris Automatic Recognition System.
	CN Patent. An automatic measurement device for crack tip opening displacement image.
2017	**CN Patent**. An automatic scoring method and system for operation program.