

- [13] Kwon, S., 2020. A CNN-assisted enhanced audio signal processing for speech emotion recognition. *Sensors*, 20(1):183.
- [14] Lu K, Ting L, Keming W, Hanbing Z, Makoto T, Bin Y., 2015. An Improved Shuffled Frog-Leaping Algorithm for Flexible Job Shop Scheduling Problem. *Algorithms*. 8(1):19-31. <https://doi.org/10.3390/a8010019>.
- [15] Lu, S., Lu, Z. and Zhang, Y.D., 2019. Pathological brain detection based on AlexNet and transfer learning. *Journal of computational science*, 30:41-47.
- [16] Nemati, S., Rohani, R., Basiri, M.E., Abdar, M., Yen, N.Y. and Makarenkov, V., 2019. A hybrid latent space data fusion method for multimodal emotion recognition. *IEEE Access*, 7:172948-172964.
- [17] Poria, S., Majumder, N., Mihalcea, R. and Hovy, E., 2019. Emotion recognition in conversation: Research challenges, datasets, and recent advances. *IEEE Access*, 7:100943-100953.
- [18] Rahdari, F., Rashedi, E. and Eftekhari, M., 2019. A multimodal emotion recognition system using facial landmark analysis. *Iranian Journal of Science and Technology, Transactions of Electrical Engineering*, 43(1):171-189.
- [19] Sajjad, M. and Kwon, S., 2020. Clustering-based speech emotion recognition by incorporating learned features and deep BiLSTM. *IEEE Access*, 8:79861-79875.
- [20] Tang, H., Liu, W., Zheng, W.L. and Lu, B.L., 2017. Multimodal emotion recognition using deep neural networks. In *International Conference on Neural Information Processing*, Springer, Cham:811-819.
- [21] Tuncer, T., Dogan, S. and Acharya, U.R., 2021. Automated accurate speech emotion recognition system using twine shuffle pattern and iterative neighborhood component analysis techniques. *Knowledge-Based Systems*, 211:106547.
- [22] Tzirakis, P., Trigeorgis, G., Nicolaou, M.A., Schuller, B.W. and Zafeiriou, S., 2017. End-to-end multimodal emotion recognition using deep neural networks. *IEEE Journal of Selected Topics in Signal Processing*, 11(8):1301-1309.

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