





































197–210 (2021).

- [21] Tyagi, A., Bansal, S.: Feature extraction technique for vision-based indian sign language recognition system: A review. *Computational Methods and Data Engineering*, 39–53 (2021).
- [22] Varsha, M., Nair, C.S.: Indian sign language gesture recognition using deep convolutional neural network. In: 2021 8th International Conference on Smart Computing and Communications (ICSCC), pp. 193–197 (2021). IEEE.
- [23] Gupta, R., Golaya, S., Srinivasan, R.: Transfer-learning based userpersonalization of indian sign language recognition system. In: 2022 8th International Conference on Advanced Computing and Communication Systems (ICACCS), vol. 1, pp. 615–620 (2022). IEEE.
- [24] Sharma, S., Singh, S.: Recognition of indian sign language (isl) using deep learning model. *Wireless Personal Communications* 123(1), 671–692 (2022).
- [25] Bahia, N.K., Rani, R.: Multi-level taxonomy review for sign language recognition: Emphasis on indian sign language. *Transactions on Asian and Low-Resource Language Information Processing* (2022).
- [26] Pereira-Montiel, E., P´erez-Giraldo, E., Mazo, J., Orrego-Metaute, D., Delgado-Trejos, E., Cuesta-Frau, D., Murillo-Escobar, J.: Automatic sign language recognition based on accelerometry and surface electromyography signals: A study for colombian sign language. *Biomedical Signal Processing and Control* 71, 103201 (2022).
- [27] Li, R., Meng, L.: Multi-view spatial-temporal network for continuous sign language recognition. arXiv preprint arXiv:2204.08747 (2022).
- [28] Huang, J., Zhou, W., Zhang, Q., Li, H., Li, W.: Video-based sign language recognition without temporal segmentation. In: *Proceedings of the AAAI Conference on Artificial Intelligence*, vol. 32 (2018).
- [29] Koller, O., Forster, J., Ney, H.: Continuous sign language recognition: Towards large vocabulary statistical recognition systems handling multiple signers. *Computer Vision and Image Understanding* 141, 108–125 (2015).
- [30] Tyagi, A., Bansal, S.: Hybrid fist cnn approach for feature extraction for vision-based indian sign language recognition. *Int. Arab J. Inf. Technol.* 19(3), 403–411 (2022).
- [31] Mavi, A.: A new dataset and proposed convolutional neural network architecture for classification of american sign language digits. arXiv preprint arXiv:2011.08927 (2020).
- [32] Triesch, J., Von Der Malsburg, C.: Robust classification of hand postures against complex backgrounds. In: *Proceedings of the Second International Conference on Automatic Face and Gesture Recognition*, pp. 170–175 (1996). IEEE.
- [33] Pisharady, P.K., Vadakkepat, P., Loh, A.P.: Attention based detection and recognition of hand postures against complex backgrounds. *International Journal of Computer Vision* 101(3), 403–419 (2013).
- [34] Berg, A., Deng, J., Fei-Fei, L.: Large scale visual recognition challenge 2010 (2010).
- [35] Deng, J., Dong, W., Socher, R., Li, L.-J., Li, K., Fei-Fei, L.: Imagenet: A large-scale hierarchical image database. In: 2009 IEEE Conference on Computer Vision and Pattern Recognition, pp. 248–255 (2009). IEEE.
- [36] Kingma, D.P., Ba, J.: Adam: A method for stochastic optimization. arXiv preprint arXiv:1412.6980 (2014).
- [37] Duchi, J., Hazan, E., Singer, Y.: Adaptive subgradient methods for online learning and stochastic optimization. *Journal of machine learning research* 12(7) (2011).
- [38] Zeiler, M.D.: Adadelta: an adaptive learning rate method. arXiv preprint arXiv:1212.5701 (2012).
- [39] Bengio, Y.: Practical recommendations for gradient-based training of deep architectures. In: *Neural Networks: Tricks of the Trade*, pp. 437–478 (2012). Springer.