**References:**

1] WHO , WHO calls on private sector to provide affordable hearing aids in developing world, WHO/34, 11July2001 [[PubMed](https://www.ncbi.nlm.nih.gov/pubmed/11887302)]

[2] Singha, J. and Das, K. “Hand Gesture Recognition Based on Karhunen-Loeve Transform”, Mobile and Embedded Technology International Conference (MECON), January 17-18, 2013, India. 365-371.

[3] D. Aryanie, Y. Heryadi. American Sign Language-Based Finger-spelling Recognition using k-Nearest Neighbors Classifier. 3rd International Conference on Information and Communication Technology (2015) 533-536.

[4] R. Sharma et al. Recognition of Single Handed Sign Language Gestures using Contour Tracing descriptor. Proceedings of the World Congress on Engineering 2013 Vol. II, WCE 2013, July 3 - 5, 2013, London, U.K.

[5] T.Starner and A. Pentland. Real-Time American Sign Language Recognition from Video Using Hidden Markov Models. Computational Imaging and Vision, 9(1); 227-243, 1997.

[6] M. Jeballi et al. Extension of Hidden Markov Model for Recognizing Large Vocabulary of Sign Language. International Journal of Artificial Intelligence & Applications 4(2); 35-42, 2013 [7] H. Suk et al. Hand gesture recognition based on dynamic Bayesian network framework. Patter Recognition 43 (9); 3059-3072, 2010.

[8] P. Mekala et al. Real-time Sign Language Recognition based on Neural Network Architecture. System Theory (SSST), 2011 IEEE 43rd Southeastern Symposium 14-16 March 2011. [

[9] Y.F. Admasu, and K. Raimond, Ethiopian Sign Language Recognition Using Artificial Neural Network. 10th International Conference on Intelligent Systems Design and Applications, 2010. 995-1000.

[10] J. Atwood, M. Eicholtz, and J. Farrell. American Sign Language Recognition System. Artificial Intelligence and Machine Learning for Engineering Design. Dept. of Mechanical Engineering, Carnegie Mellon University, 2012.

[11] L. Pigou et al. Sign Language Recognition Using Convolutional Neural Networks. European Conference on Computer Vision 6-12 September 2014

12] Mitchell, Ross; Young, Travas; Bachleda, Bellamie; Karchmer, Michael (2006). "How Many People Use ASL in the United States?: Why Estimates Need Updating" (PDF). Sign Language Studies (Gallaudet University Press.) 6 (3). ISSN 0302-1475. Retrieved November 27, 2012.

13] Lifeprint.com. American Sign Language (ASL) Manual Alphabet (fingerspelling) 2007.

14] <http://www.manitoba.ca/index.html>

15] Mitra, S. and Acharya, T. (2007) Gesture Recognition: A Survey. IEEE Transactions on Systems, Man, and Cybernetics, Part C: Applications and Reviews, 37, 311-324.

16] Nagi, Jawad, Frederick Ducatelle, Gianni A. Di Caro, Dan Ciresan, Ueli Meier, Alessandro Giusti, Farrukh Nagi, Jurgen Schmidhuber, and Luca Maria Gambardella. “Max-Pooling Convolutional Neural Networks for Vision-Based Hand Gesture Recognition.” 2011 IEEE International Conference on Signal and Image Processing Applications (ICSIPA), 2011. doi:10.1109/ICSIPA.2011.6144164.

17] BEDREGAL, B.R.C.; DIMURO, G.P.; COSTA, A.C.R. “Hand Gesture Recognition in an Interval Fuzzy Approach”. [***Tema - Trends in Computational and Applied Mathematics***](http://www.sbmac.org.br/tema/)., v. 8, n. 1, p. 21-31, 2007.

18] Sahoo, A. K., Mishra, G. S., and Ravulakollu, K. K. (2014). Sign Language Recognition : State of the Art. Asian Res. Publ. Netw., 9(2):116–134.

19] Phil, L. T., Nguyen, H. D., Suil, T. T. Q., and Vul, T. T. (2015). A Glove-Based Gesture Recognition System for Vietnamese Sign Language. 15th Int. Conf. Control. Autom. Syst., (Iccas):1555–1559.

20] Emond A, Ridd M, Sutherland H, Allsop L, Alexander A, Kyle J. The current health of the signing Deaf community in the UK compared with the general population: a cross-sectional study. BMJ Open. 2015;5(1) doi: 10.1136/bmjopen-2014-006668.

21] L. Bretzner, I. Laptev, and T. Lindeberg. Hand gesture recognition using multi scale colour features, hierarchical models and particle filtering. In Automatic Face and Gesture Recognition, 2002. Proceedings. Fifth IEEE International Conference on, pages 405-410, 2002.

22] S. Mckenna and K. Morrison, “A comparison of skin history and trajectory-based representation schemes for the recognition of user- specific gestures,” Pattern Recognition, vol. 37, pp. 999–1009, 2004.

23] K. Imagawa, H. Matsuo, R. Taniguchi, D. Arita, S. Lu, and S. Igi. Recognition of local features for camera-based sign language recognition system. In Proc. International Conference on Pattern Recognition, volume 4, pages 849–853, 2000.

24] N. Dardas, N. Georganas, “Real-time Hand Gesture Detection and Recognition Using Bag-of-Features and Support Vector Machine Techniques”, IEEE Transactions on Instrumentation and Measurement, VOL. 60, no. 11, pp. 3592 - 3607, Nov 2011.

25] X. Zabulis, H. Baltzakis and A. Argyros. “Vision-based hand gesture recognition for human- computer interaction”. Chapter 34, in "The Universal Access Handbook", Lawrence Erlbaum Associates, Inc. (LEA), 2009.

26] J. Rehg and T. Kanade. Digiteyes: Vision-based hand tracking for humancomputer interaction. In Workshop on Motion of Non-Rigid and Articulated Bodies, pages 16-24, Austin Texas, November 1994.

27] D. Gavrila and L. Davis. 3-D model-based tracking of humans in action: a multiview approach. In Proc. IEEE Computer Vision and Pattern Recognition (CVPR), pages 73-80, 1996, 1996.

28] A. Utsumi and J. Ohya. Image segmentation for human tracking using sequentialimage-based hierarchical adaptation. In Proc. IEEE Computer Vision and Pattern Recognition (CVPR), pages 911-916, 1998.

29] A. Blake, B. North, and M. Isard. Learning multi-class dynamics. In Proc. Advances in Neural Information Processing Systems (NIPS), volume 11, pages 389-395, 1999.

30] J. Crowley, F. Berard, and J. Coutaz. Finger tracking as an input device for augmented reality. In International Workshop on Gesture and Face Recognition, Zurich, June 1995.

31] J. Rehg and T. Kanade. Model-based tracking of self-occluding articulated objects. In Proc. International Conference on Computer Vision (ICCV), pages 612-617, 1995.

32] J. Davis and M. Shah. Visual gesture recognition. Vision, Image, and Signal Processing, 141(2):101-106, 1994.

33] Q. Chen, N. Georganas, E. Petriu, “Real-time Vision-based Hand Gesture Recognition Using Haar-like Features”, IEEE Instrumentation and Measurement Technology Conference Proceedings, IMTC 2007.

34] P. Viola and M. Jones. Robust real-time object detection. In IEEE Workshop on Statistical and Computational Theories of Vision, Vancouver, Canada, 2001.

35] P. Viola, M. Jones. Robust Real-Time Face Detection. International Journal of Computer Vision 57, 2 (May 2004), 137–154.

36] Y. Wu, J. Lin, and T. Huang, “Capturing Natural Hand Articulation”. In IEEE International Conference on Computer Vision II, 426–432, 2001.

37] N. Shimada, Y. Shirai, Y. Kuno, and J. Miura. Hand gesture estimation and model refinement using monocular camera - ambiguity limitation by inequality constraints. In IEEE Int. Conf. on Face and Gesture Recognition, pages 268-273, Nara, Japan, 1998.

38] Y. Wu and T. T. Huang. Capturing human hand motion: A divide-and-conquer approach. In Proc. International Conference on Computer Vision (ICCV), pages 606-611, Greece, 1999.

39] O. Aran, C. Keskin, L. Akarun. Computer Applications for Disabled People and Sign Language Tutoring. Proceedings of the Fifth GAP Engineering Congress, 26-28 April 2006, S¸ anlıurfa, Turkey.

40] A. Tokatlı, U. Halıcı. 3D Hand Tracking in Video Sequences. MSc Thesis, September 2005, Middle East Technical University.

41] H. Jun and Z. Hua, “A real-time face detection method in human-machine interaction,” in Proc. International Conference on Bioinformatics and Biomedical Engineering (ICBBE), 2008.

42] Q. Zhu, C.-T. Wu, K.-T. Cheng, and Y.-L. Wu, “An adaptive skin model and its application to objectionable image filtering,” in Proc. ACM Multimedia, 2004, pp.

43] W. Kelly, A. Donnellan, and D. Molloy, “Screening for objectionable images: A review of skin detection techniques,” in Proc. IMVIP, 2008, pp. 151–158.

44] B. Zarit, B. Super, and F. Quek, “Comparison of five color models in skin pixel classification,” in Proc. ICCV Int. Workshop Recog., Anal. Tracking Faces Gestures Real-Time Syst., 1999, pp. 58–63.

45] A. Ford and A. Roberts, “Color space conversions,” Westminster Univ., London, U.K., Aug. 11, 1998.

46] R. Gonzalez, R. Woods, and S. Eddins, Digital Image Processing Using MATLAB. Englewood Cliffs, NJ: Prentice-Hall, 2004

47] J. Foley, Computer Graphics Principles and Practice (2nd edition in C), Addison Wesley, 1996.

48] K. Nallaperumal, S. Ravi, C. N. K. Babu, R. K. Selvakumar, A. L. Fred, C. Seldev, and S. S. Vinsley, “Skin detection using color pixel classification with application to face detection: A comparative study,” in Proc. IEEE Int. Conf. Comput. Intell. Multimedia Appl., 2007, vol. 3, pp. 436–441

49] Abdulla, S. and Manaf, R. (2016). Design and Implementation of A Sign-to- Speech/Text SystemforDeafandDumbPeople. 5thInt.Conf.Electron.Devices,Syst.Appl.,pages3–6.

50] R. Cutler, M. Turk. View based Interpretation of Real-time Optical Flow for Gesture Recognition, 3rd IEEE Conf. on Face and Gesture Recognition, Nara, Japan, April 1998.

51] J. Martin, V. Devin, and J. Crowley. Active hand tracking. In IEEE Conference on Automatic Face and Gesture Recognition, pages 573-578, Nara, Japan, 1998.

52] H. Greenspan, J. Goldberger, and I. Eshet, “Mixture Model for Face Color Modeling and Segmentation,” Pattern Recognition Letters, vol. 22, pp. 1525- 1536, Sept. 2001.

53] S.L. Phung, D. Chai, and A. Bouzerdoum, “A Universal and Robust Human Skin Color Model Using Neural Networks,” Proc. INNS-IEEE Int’l Joint Conf. Neural Networks, vol. 4, pp. 2844-2849, July 2001.