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3D- Convolutional Neural Network with Data Enhance Hand Gestures Recognition

S.Jayaprakash[1], Dr.K.Mahalakshmi[2], R.Yuvaraj[3], Dr Amarendra K[4]
Dr.A.Sathiskumar[5], Dr.P.Rajaram[6], S.Ramesh[7], Dr. Pankaj Dadheech[8],

[1]*Assistant Professor, Dept. of CSE, Idhaya Engineering College for Women, Chinnasalem, Tamil Nadu, India. Email:sjpme1981@gmail.com*
[2] *Professor, Dept. of CSE, Kalaigar Karunanidhi Institute of Technology, Coimbatore, Tamil Nadu, India. Email:prof.dr.mlk@gmail.com*
[3] *Senior Assistant Professor, Dept. of ECE, Saveetha School of Engineering, Chennai, Tamil Nadu, India. Email: yuvarajr.sse@saveetha.com*
[4]*Professor, Dept. of CSE,Koneru Lakshmaiah Education Foundation, Andhra Pradesh, India, Email : amarendra@kluniversity.in*
[5]*Associate Professor, Dept. of ECE, Kavery Engineering College, Mecheri, Tamil Nadu, India. Email: sat090579@gmail.com*
[6] *Associate Professor , Dept. of CSE /, AKT Memorial College of Engineering and Technology, Kallakurichi, Tamil Nadu, India, Email: rajaramnov82@gmail.com*
[7] *Assistant Professor, Dept. of CSE, Krishnasamy College of Engineering and Technology Cuddalore, Tamil Nadu, India. Email: awami.itraj@gmail.com*
[8] *Associate Professor, Dept. of CSE, Swami Keshvanand Institute of Technology, Management & Gramothan (SKIT), Ramnagaria, Jagatpura, Jaipur, Rajasthan-302017, India, E-mail : pankajdadheech777@gmail.com*

Abstract

Computers are part of our daily lives and used in different fields. Traditional input devices like mouse, keyboard, etc. perform human-computer interaction. Hand gestures can be a useful means of interacting with the human-computer and can facilitate interaction. The gestures vary from person to person in orientation and form. In this problem, then, there is no linearity. Supremacy for image representation and classification has been observed experimentally by the Convolutional Neural Network (CNN).In this proposal, hand gestures are recognized using RGB-D sequences captured with a detector. To do so, I used a technique that combines computer vision with profound learning called 3D CNN. The data - set included data increase, including re-scaling, zoom, shearing, rotation, width, and height shift. The model was trained for 7500 images and tested for 1600 images in 12 classes. The proposed method with increased data has obtained 96.18% accuracy, which is almost 3.91% significantly higher than the model without increase, 91.23%.

Keywords: *Convolutional Neural Network, Deep Learning, Image Processing, Hand Gestures.*