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International Journal of Computer Applications

© 2013 by IJCA Journal

Volume 77 - Number 5

Year of Publication: 2013

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10.5120/13388-1019

{bibtex}pxc3891019.bib{/bibtex}

## Abstract

Since decades, in the field of face expression recognition, many researchers have been developing numerous new techniques. These developments are being fueled by numerous advances in computer vision. Such advancement in the field of computer vision holds a promise of reducing error rate in face expression recognition system. This paper proposes an automatic facial expression recognition system using neural network with regularized back-propagation algorithm. The Cohn-Kanade database [5],[8] have been used having six different types of expression. The database is highly imbalance so face detector using Viola Jones [2] have been used to crop and balance the database. Once balanced, an neural network approach used, obtained training set accuracy 99.32% and testing accuracy 91.95%. The paper has got very good result of individual expression like happy and surprise expression, testing accuracy up to 100%. The reason why neural network is used, it might someday be able to learn in a manner similar to humankind.

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Computer Science

## Index Terms

Artificial Intelligence

## Keywords

Back-propagation algorithm Machine learning and Neural Network.