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Title:	Handwriting Based Detection of Dyslexia using Machine Learning
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Keyword(s):	Dyslexia Data set of dyslexic students in hindi PRI VCI WISC
Subject(s):	Image Processing Machine Learning
Abstract:	Dyslexia is a learning disability that affects accurate and fluent word writing. Many primary school teachers and educators in India are unaware of dyslexia, considering its prevalence. A major challenge in the diagnosis of dyslexia is the unavailability of trained manpower. As a result, many students do not perform effectively in school without sufficient help. We developed a machine learning model for categorizing such children into dyslexic and non-dyslexic categories using handwriting samples in the Hindi language. This thesis attempted to extract the static features of one's handwriting. We are proposing a data-set of Hindi handwriting collected from children with and without dyslexia and a technique to fasten-up the detection process. This thesis attempted to find a relationship between PRI score with geometrical similar words and VCI score with geometrical similar words to find the broad category of intellectual ability of such children using WISC.
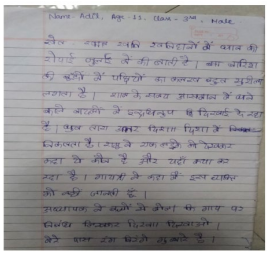
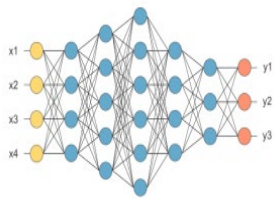

Figure 2.1: Handwriting Sample
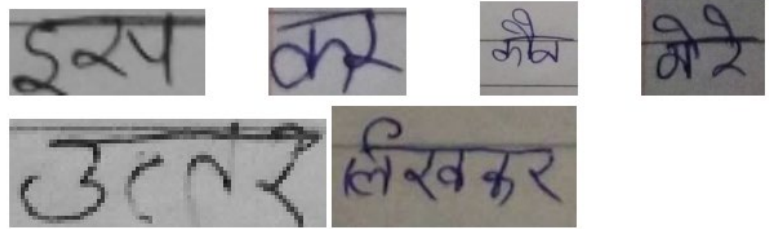

Figure 2.18: Fully Connected Layer [23]

Figure 2.4: Cropped Words

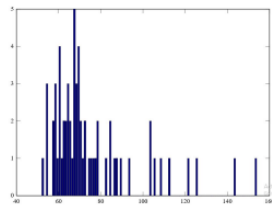Figure 2.16: Convolution of an Image with kernel [23]

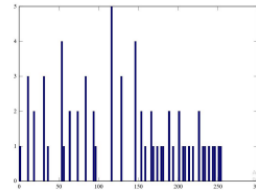Figure 2.7: Histogram of Original Image

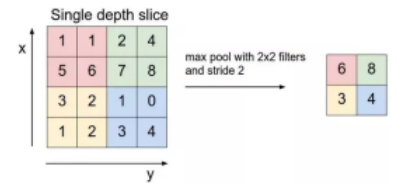Figure 2.8: Histogram of Equalized Image

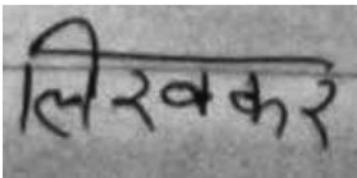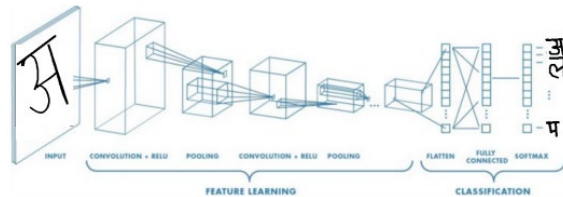Figure 2.17: Max Pooling Operation [23]

Figure 2.10: After AHE

Figure 2.12: After OTSU Binarization

Figure 2.15: Typical CNN architecture [23]