



Character Recognition In Natural Scene Images



BITS Pilani
Pilani Campus

Yash Sinha, Nirant Kasliwal, Prateek Jain

Overview



- **Character recognition technique** based on a **pipeline of image processing operations** and **ensemble machine learning techniques**
- **62 classes** 0-9, a-z and A-Z.
- Image **pixels** and **HOG** (Histogram of Oriented Gradients) as features
- **Beats the current state of the art method** for **Chars74k** Dataset Zhang et al. *Efficient discriminative learning of parametric nearest neighbor classifiers. CVPR 2012*

Steps



- **Image processing:** tackles background clutter, fonts and illumination of images.
Standard size, Binarization using Otsu's Thresholding, Morphological opening, Median filter
- **Feature extraction:** Histogram of Oriented Gradients, Image Pixel values. Addresses variation in character size & orientation.
- **Training the classifier:** K Nearest Neighbour, Random Forest, Extra Tree
- **Performance Testing:** Cross-validation, Accuracy on test data set.