*International Journal of Engineering Applied Sciences and Technology, 2022*
**Vol. 6, Issue 9, ISSN No. 2455-2143, Pages 196-198**
Published Online January 2022 in IJEAST (http://www.ijeast.com)

# CELEBRITY IMAGE CLASSIFICATION

Dheeraj Sangisetty, Dr. D Usha
Department of CSE
Dr. M.G.R Educational and Research Institute, Chennai, Tamil Nadu, India

***Abstract*— Image classification is a supervised learning problem: define a set of target classes (objects to identify in images), and train a model to recognize them using labelled example photos. The main motto of the project is to build a website where user can drag and drop an image of the celebrity and the website will provide the details of the celebrity. Project is restricted to only 5 classes which means to provide only any 5 celebrities whose details will be extracted in drag and drop by user.**

***Keywords*— Classification, support vector machine, feature engineering, preprocessing, data science, machine learning.**

## I. INTRODUCTION

The human face plays an important role in our social interaction, carrying information about people's identity. Due to recent progress in performance, the use of facial recognition technology has grown significantly in the past several years due to its potential for a wide variety of applications in both commercial applications and security. Compared to other biometric technology, face recognition techniques does not require the collaboration of the subject. It enables faces to identify a person in real-time.

The great progress of automatic face recognition in recent years has made large-scale face identification possible for many practical applications [1]. This application is widely used when the images for the persons to be recognized are available beforehand, and an accurate recognizer is needed for a large and relatively fixed group of people. For example, most of the face recognition application is used for search engine [2], recognition for public figure in media industry, and video streaming companies for movie character annotation [3].

## II. RELATED WORK

The problem with small datasets is that deep learning models particularly Convolutional Neural Networks (CNNs), Support Vector Machines (SVMs) trained with them do not generalize well data from the validation and test set. Hence, these models suffer from the problem of overfitting. Therefore, to combat overfitting, many techniques have been proposed for example, dropout [1] and batch normalization [2]. Dropout works by probabilistically removing a neuron from designated layers during training or by dropping certain connection. Batch normalization method, allows us to train the normalization weights and normalizes layers. Batch normalization can be applied to any layer within the net and hence is very effective. Another popular method is data augmentation, where we use the data you currently have and manipulating them to produce more altered versions of the same image, to increase the variety of data seen during training. Data augmentation has shown effective in image classification [3]. Various smart data augmentation methods have been proposed include geometric augmentations such as oversampling [4], rotating [5], mirroring [6] and photometric transformations [7]. In addition to the typical transformations, face image was augmented with Hairstyles synthesis [8], Glasses synthesis [9], Illuminations synthesis [10]. Another framework named Hyper-class augmented and regularized deep learning [11]. This exposes the CNNs models to additional variations without the cost of collecting and annotating more data. This can have the effect of reducing overfitting and improving the model's ability to generalize.

## III. PROPOSED SYSTEM

We propose to create a website where we can get the details of the person by dropping the image in the website. We first collect the data set images using web scraping (web scraping is the **process of using bots to extract content and data from a website**. The scraper can then replicate entire website content elsewhere. Web scraping is used in a variety of digital businesses that rely on data harvesting.), or manual download. And after cleaning the data we do pre processing using open cv and then train our data set using Support Vector Machine (SVM). The model is then deployed using Flask. After deployment, the output is displayed on the web page.

## IV. DATASET COLLECTION

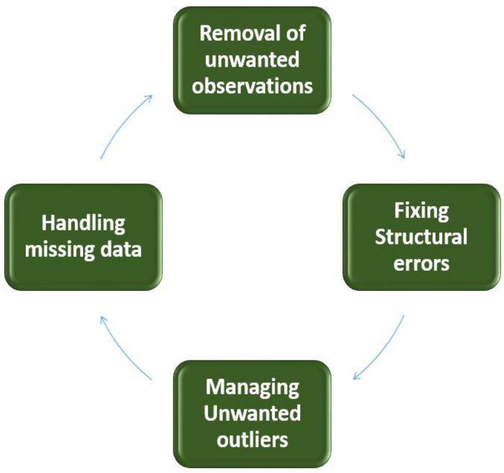
The first step in building the face dataset is to get an initial list of public figures and popular celebrity's names i.e., the people with high representation on search engines, such as actors, football players and politicians to avoid any privacy issue in downloading their pictures. This is done by using web scraping or manually downloading images from internet.

## V. DATA CLEANING

Data cleaning is the process of fixing or removing incorrect, corrupted, incorrectly formatted, duplicate, or incomplete data within a dataset. When combining multiple data sources, there are many opportunities for data to be duplicated or mislabeled. If data is incorrect, outcomes and algorithms are unreliable, even though they may look correct. There is no one absolute

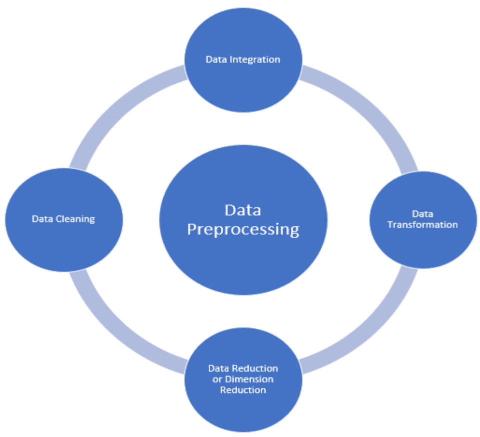
*International Journal of Engineering Applied Sciences and Technology, 2022*
**Vol. 6, Issue 9, ISSN No. 2455-2143, Pages 196-198**
Published Online January 2022 in IJEAST (http://www.ijeast.com)

way to prescribe the exact steps in the data cleaning process because the processes will vary from dataset to dataset. But it is crucial to establish a template for your data cleaning process so you know you are doing it the right way every time.




## VI. DATA PRE PROCESSING

Data preprocessing is **the process of transforming raw data into an understandable format**. The quality of the data should be checked before applying machine learning or data mining algorithms.

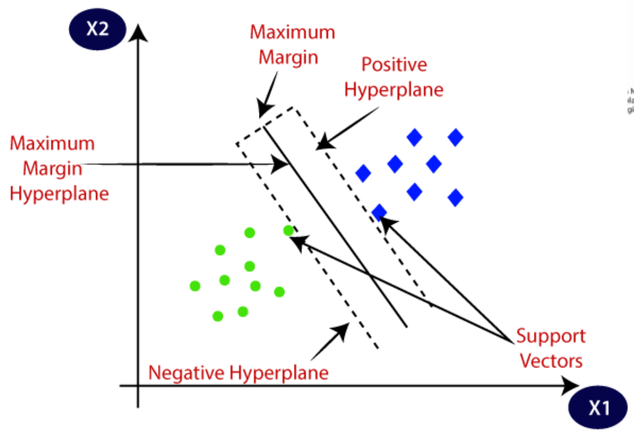



## VII. SVM ALGORITHM

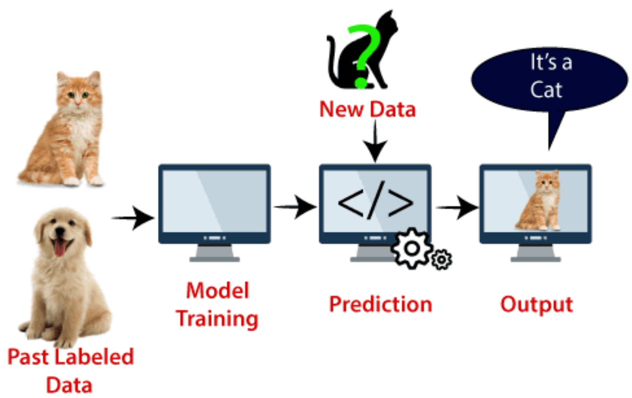
Support Vector Machine or SVM is one of the most popular Supervised Learning algorithms, which is used for Classification as well as Regression problems. However, primarily, it is used for Classification problems in Machine Learning.

The goal of the SVM algorithm is to create the best line or decision boundary that can segregate n-dimensional space into classes so that we can easily put the new data point in the correct category in the future. This best decision boundary is called a hyperplane.

SVM chooses the extreme points/vectors that help in creating the hyperplane. These extreme cases are called as support vectors, and hence algorithm is termed as Support Vector Machine. Consider the below diagram in which there are two different categories that are classified using a decision boundary or hyperplane.

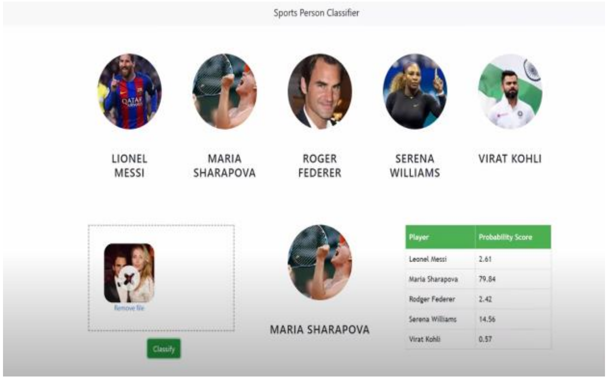



**Example:** SVM can be understood with the example that we have used in the KNN classifier. Suppose we see a strange cat that also has some features of dogs, so if we want a model that can accurately identify whether it is a cat or dog, so such a model can be created by using the SVM algorithm. We will first train our model with lots of images of cats and dogs so that it can learn about different features of cats and dogs, and then we test it with this strange creature. So as support vector creates a decision boundary between these two data (cat and dog) and choose extreme cases (support vectors), it will see the extreme case of cat and dog. On the basis of the support vectors, it will classify it as a cat. Consider the below diagram:



*International Journal of Engineering Applied Sciences and Technology, 2022*
**Vol. 6, Issue 9, ISSN No. 2455-2143, Pages 196-198**
Published Online January 2022 in IJEAST (http://www.ijeast.com)

## VIII. EXPECTED OUTPUT UI




## IX. CONCLUSION

In conclusion, our data science and machine learning approach called celebrity image classification using SVM lead to impressive results with limited resources and has better speed and accuracy compared to other algorithms. Celebrity Image Classification can recognize the images with 98% accuracy in real time, which is pretty much as good as humans can do it.

## X. REFERENCES

[1]. G. E. HINTON, N. SRIVASTAVA, A. KIRZHEVSKY, I. SUTSKEVER and R. R. Salakhutdinov, "Improving neural networks by preventing co-adaptation of feature detectors," arXiv preprint arXiv:1207.0580, 2012.

[2]. Y. MA and D. KLABJAN, "Convergence analysis of batch normalization for deep neural nets," CoRR, abs/1705.08011, 2017.

[3]. S. C. WONG, A. GATT, V. STAMATESCU and M. D. MCDONNEL, "Understanding data augmentation for classification: when to warp?," CoRR, abs/1609.08764, 2016.

[4]. A. KRIZHEVSKY, I. SUTSKEVER and G. E. HINTON, "Imagenet classification with deep convolutional neural networks," Neural Inform. Process. Syst., p. 1097–1105, 2012.

[5]. S. XIE and Z. TU, "Holistically-nested edge detection," Proc. Int. Conf. Comput. Vision, 2015.

[6]. H. YANG and I. PATRAS, "Mirror, mirror on the wall, tell me, is the error small?," Proc. Conf. Comput. Vision Pattern Recognition, 2015.

[7]. K. HE, X. ZHANG, S. REN and J. SUN, "Spatial pyramid pooling in deep convolutional networks for visual recognition," arXiv:1406.4729 [cs.CV], 2015.

[8]. L. Luoqi , X. Hui , X. Junliang , L. Si , Z. Xi and S. Yan, "Wow! you are so beautiful today!," Proceedings of the 21st ACM international conference on Multimedia, pp. 3-12, 2013.

[9]. W. Yandong , L. Weiyang , Y. Meng , F. Yuli , X. Youjun and H. Rui , "Structured occlusion coding for robust face recognition," Neurocomputing, p. 11–24, 2016

[10]. J. Dalong, H. Yuxiao, Y. Shuicheng, Z. Lei, Z. Hongjiang and G. Wen, "Efficient 3Dreconstruction for face recognition," Pattern Recognition , vol. 38, no. 6, pp. 787-798, 2005.

[11]. S. XIE, T. YANG, X. WANG and Y. LIN, "Hyper-class augmented and regularized deep learning for fine-grained image classification," Proc. Conf. Comput. Vision Pattern Recognition, p. 2645–2654, 2015.

[12]. G. B. Huang, M. Ramesh, T. Berg and E. Learned-Miller, "Labeled faces in the wild: A database for studying face recognition in unconstrained environments," University of Massachusetts, Amherst, Technical Report, pp. 07-49, 2007.

## XI. ACKNOWLEDGEMENTS

I wish to extend my special thanks to Dr. D. Usha and Mrs. T. Kiruba Devi from department of computer science and engineering for their constant support since the beginning.