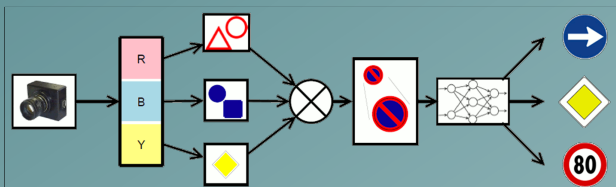


# Analysis of different techniques for traffic signs recognition



Università degli Studi di Parma

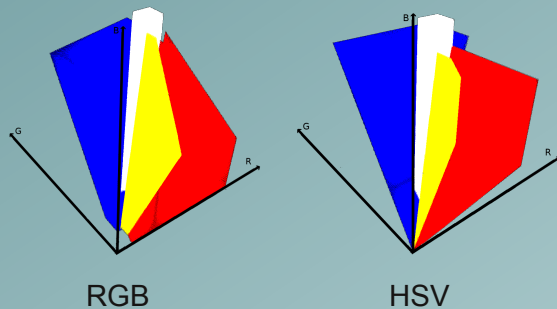
Elena Cardarelli



Color-based traffic signs recognition system



## Color Segmentation



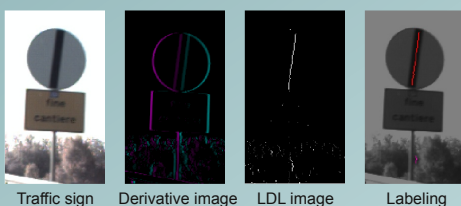
## Shape Detection

- (PM) Pattern matching
- (LSF) Least squares fitting of circles
- (RD) Evaluation of the radial distance from the corners of the bounding box

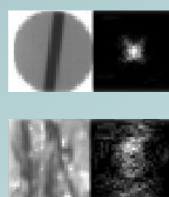
	Triangles	Circles	Rectangles	Rhombus	Octagons
Red	PM	PM LSF	X	X	PM LSF
Yellow	X	X	X	PM	X
Blue	X	RD	RD	X	X

## De-restriction signs detection

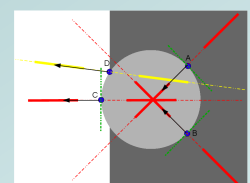
### 1. Skewed band detection



### 2. Circle detection

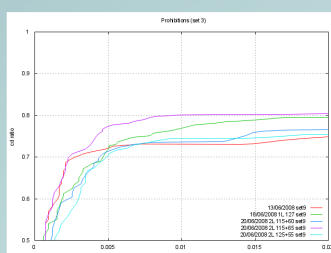


Circular Hough Transforms are computed only in regions of interest defined around the selected labels.

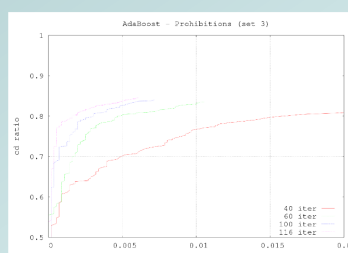


Implemented voting system for CHT

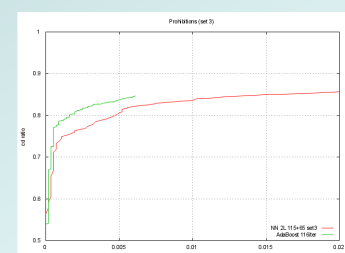
## Classification



Prohibition networks trained with different hidden layers number and size



Performance of the Viola Jones (AdaBoost + Haar Features) classifier increasing the number of iterations



Comparison between the Viola Jones classifier and the best trained neural network