# Vehicle Classification using CG Model Images

Shirmila Mohottala   Masataka Kagesawa   Katsushi Ikeuchi

We propose a robust method for recognizing vehicle classes. The recognition algorithm is based on vector quantization, which is a generalization of Eigen-window method. The system can recognize a vehicle accurately, even when a part of the vehicle is occluded by an obstacle, or shadows are cast over it. In order to dispense the trouble of collecting real training images for each class, we create the training images using computer graphics(CG). The robustness of the system is evaluated through outdoor experiments, where the vehicles are classified into four classes, Sedan, Wagon, Mini-Van and Hatchback.

Publications

1. S. Mohottala, M. Kagesawa, K. Ikeuchi, "Vehicle Class Recognition Using 3D CG Models," World Congress on Intelligent Transport Systems 2003, Madrid.

2. T. Yoshida, S. Mohottala, M. Kagesawa, K. Ikeuchi, "Vehicle Classification System Using Local-Feature Based Algorithm, " IEICE TRANS. INF.& SYST.,Vol.E85-D, No11 Nov 2002
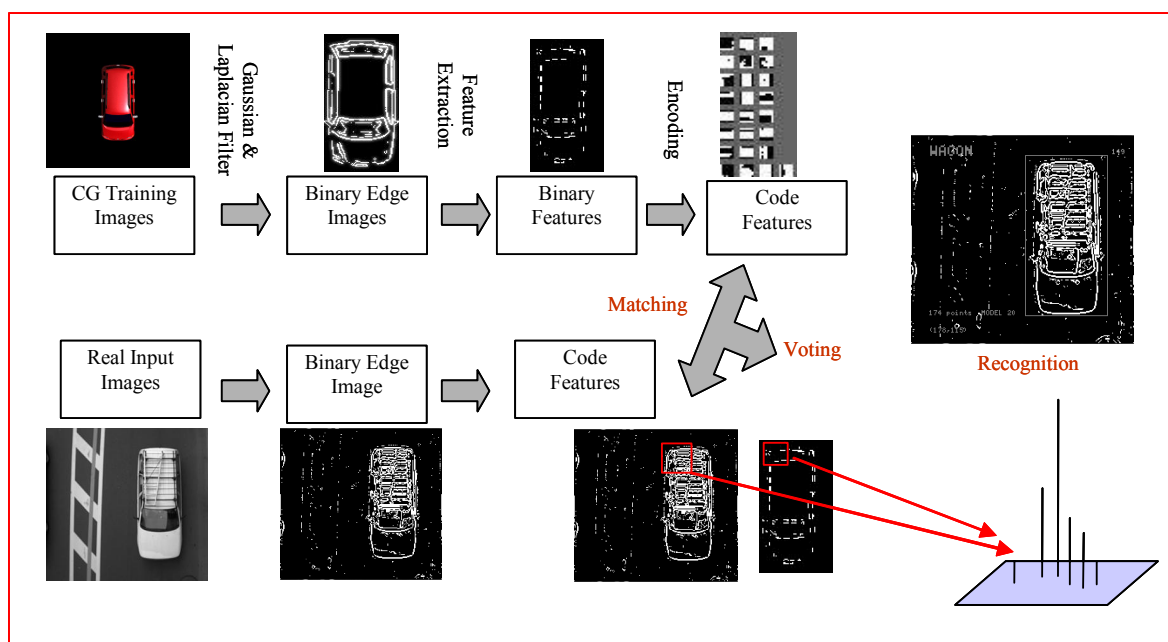
Experimental Results

Input Images

Recognition Results

Classified as	Real Class			
	Sedan	Minivan	Hatchback	Wagon
Sedan	19	0	0	1
Minivan	0	10	0	0
Hatchback	0	3	13	0
Wagon	2	2	0	15

Recognition Rate=86%