

## Machine Vision

Machine Vision Software by definition should be able to do image storage, image formation and image transformation for recognition.

Arcee Automation has a decade of experience in machine vision technologies which includes:

Image Storage (Colour and Mono ), Image Formation (Sampling and quantization), Image transformation via arithmetic and Image recognition via analysis and Artificial Intelligence.

Image Arithmetic and Recognition is a wide area which is evolving continuously and Arcee Automation applications and [inhouse products \(Multicode and Vizcheck\)](#) have utilised the following standards and techniques.

Arithmetic - Morphology (Dilation and Erosion), Kernel operations (smoothing, sharpening), edge detection (Sequential and Parallel- prewitt and canny), edge enhancement (Sobel) , fourier transform, transform and warping (Translation and Shear, rotation , scaling)

Image Recognition via

A. Analysis - Histogram, Blob, Template Matching (Correlation based, Grayscale based, Edge Based Matching), Geometry based Pattern Matching, Feature based (SURF, BRISK, FAST, Object Location), Thresholding (OTSU 2d, Basic Global Thresholding) and OCR.

B. AI in vision – SVM (Multiclass), DL SVM, CNN, Reinforcement learning, Composable AI(Model and Action) , Deep Learning, Continual Learning (dynamic ensembling), Exception remediation, Data Provenance.

Our inhouse products have been built of vision libraries from OpenCV supporting GPU environment.