

# Image Processing and Machine Vision CA (Semester VI)



**Vivekanand Education Society's Institute of Technology**  
An Autonomous Institute Affiliated to University of Mumbai



## **Creating Simulink based simulation for Chain code detection**

**Group No. : 16**

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# Problem Statement

Representing the shapes of objects in digital images involved storing the coordinates of every single pixel on the object's boundary. This approach, while accurate, was inefficient, especially for complex shapes with many pixels.

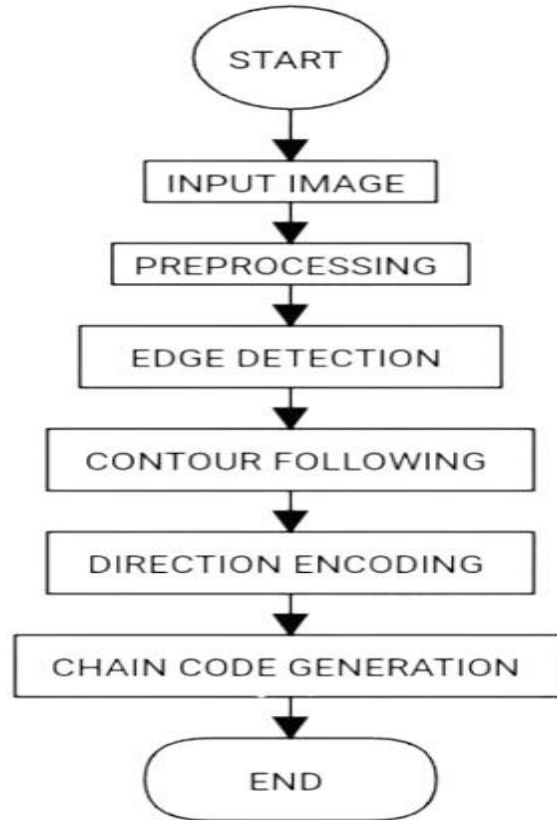
# Solution

The solution involves developing a Simulink model that simulates the process of detecting chain codes from a digital image. The simulation will likely take a digital image (represented as a matrix) as input. This image could be pre-processed (e.g., converted to grayscale) before feeding into the model.

# Literature Survey

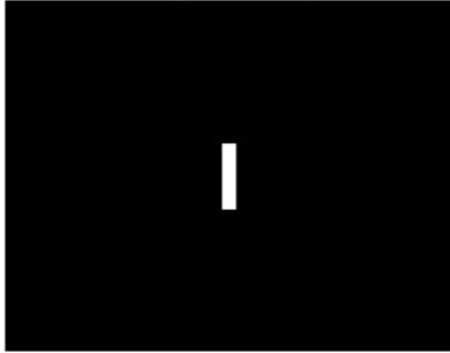
Sr. No	Title of Technical paper	Name of Author	Year of publication	Name of Journal	Methodology	Results/ conclusions	Drawbacks/ Limitations
[1]	Corner Detection From Chain-Code	HONG-CHIH LIU, M.D.SRINATH	1989	IEEE	This paper evaluates a number of corner detectors and compares their results. Corner detectors considered here include Medioni- Yasumoto corner detector, Beus-Tiu corner detector, weighted-K-curvature corner detector, Rosenfeld-Johnston corner detector, Rosenfeld-Weszka corner detector, and Cheng-Hsu corner detector.	From the examples presented, it appears that the performance of the Beus- Tiu corner detector is closest to that of a human viewer on both the original test image set and the noisy image set.	Chain coding is sensitive to the resolution of the image.If the resolution changes,the chain code representation may also change,affecting its accuracy.
[2]	A New Algorithm for Extracting the Interior of Bounded Regions Based on Chain Coding	S.M.ALI ,R.E BURGE	1988	Semantic Scholar	In this paper, the coding technique to be described is based on chain coding edge images, using 8direction codes. In order to minimize the code which will result from the entire procedure, it is necessary to minimize the number of chained boundaries.	In this paper, a new technique for extracting the interior of bounded regions is presented, which is based on chain coding the boundaries.	Chain coding relies on tracing the boundary of connected components.If the boundary is noisy or irregular,the resulting chain code may not accurately represent the shape of the object

# Flowchart of Algorithm

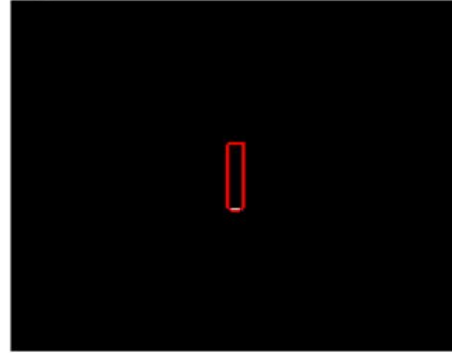


# Results

Original Image



Edge Detection and Chain Code



# Matlab/Simulink File Link



# References

- 1)Gottschalk, P. G.; Turney, J. L.; Mudge, T. N. Two- dimensional partially visible object recognition using efficient multidimensional range queries. Proc. Int. Conf. Robotics Automation; pp. 1582-1589; 1987.
- 2)Dreschler, L.; Nagel, H. Volumetric model and 3-D trajectory of a moving car derived from monocular TV- frame sequence of a street scene. Proc. Int. J. Conf. Artif. Intell.; pp.692-697; 1981.
- 3)Kalvin, A.; Schonberg, E.; Schwartz, J. T.; Scharir, M. Two-dimensional, model-based, boundary matching using footprints. Int. J. Robotics Res. 5: 38-55; 1986.

**THANK YOU !**