AI in Image Processing

A Project Report Submitted
in Partial Fulfillment of the Requirements
for the Degree of

Bachelor of Technology

by

Kaushal Kishore
(111601008)

under the guidance of

Dr. Chandra Shekar

**INDIAN INSTITUTE
OF TECHNOLOGY
PALAKKAD**

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CERTIFICATE

This is to certify that the work contained in this thesis entitled "**AI in Image Processing**" is a bonafide work of **Kaushal Kishore (Roll No. 111601008)**, carried out in the Department of Computer Science and Engineering, Indian Institute of Technology Palakkad under my supervision and that it has not been submitted elsewhere for a degree.

Dr. Chandra Shekar

Assistant Professor

Department of Computer Science & Engineering

Indian Institute of Technology Palakkad

Acknowledgements

Write acknowledgements, if your want to.

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Chapter 1

Introduction

Image processing libraries these days (eg. Open CV) uses the conventional methods which have the possibility to be outperformed by methods which leverage the power of artificial intelligence. Some recent research have shown that some of these AI based methods are able to perform atleast as good as conventional approaches. The aim of this project is to implement, apply and possibly improve upon the existing approaches in Digital Image Processing and Computer Vision. These common tasks can include (not limited to) applications like: Image Compression, Denoising, Super Resolution, Flow Estimation, Object Detection, etc.

1.1 Image Processing

Image processing is manipulating an image in order to enhance it or extract information from it. It is widely useed in medical visualization, biometrics, self-driving vehicles, gaming, surveillance, and law enforcement. It can used in various ways: visualization, restoration, imformation retrieval, pattern recognition, etc.

General approach of image processing involves eight key phases: image acquisition, image enhancement, image restoration, color space transformation, compression or decom-
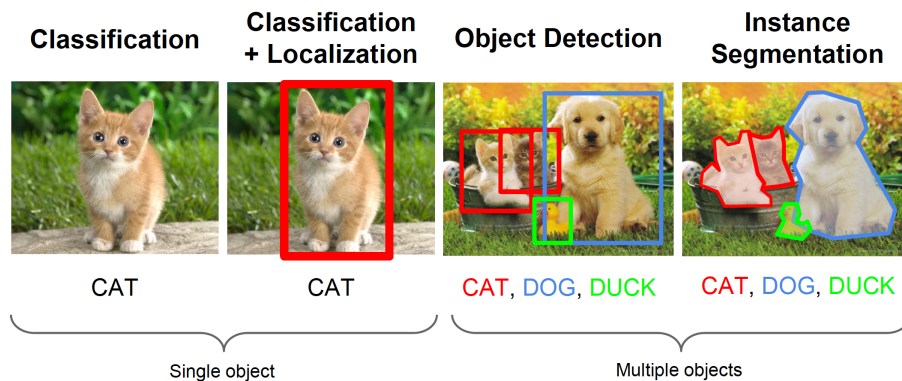
Fig. 1.1 Examples of pattern recognition
Source: www.cs.cornell.edu

pression, morphological processing, recognition, and representation. It is very difficult to carry out these steps manually on a very big data, this is where AI and ML algorithms become very helpful.
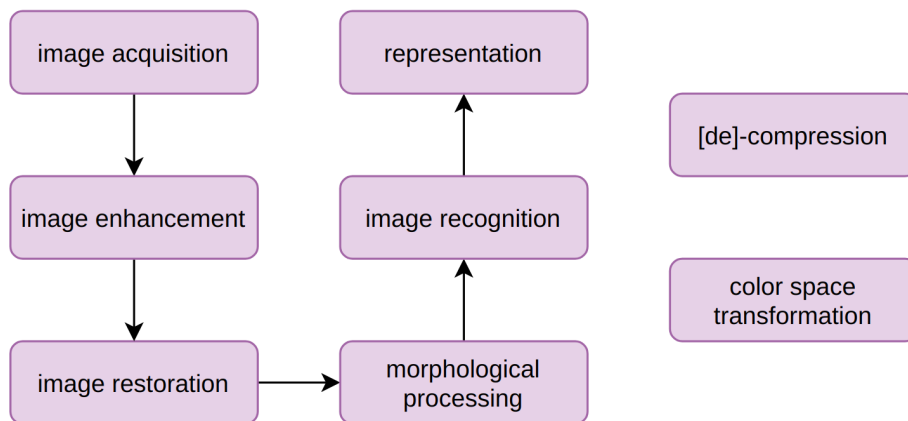

Fig. 1.2 Key phases of image processing

1.2 2nd Section name

2nd Section

1.3 Organization of The Report

You can write the about organization of your report in the following manner.

This chapter provides a background for the topics covered in this report. We provided a description of wireless ad hoc networks, and their applications. Then we described the network model that represents the topology of wireless ad hoc networks [1]. In this chapter it is shown that the virtual backbone for wireless ad hoc networks can be represented by a connected dominating set. We explained clustering concepts and lastly the difference between centralized and distributed algorithms are also discussed. The rest of the chapters are organised as follows: next chapter we provide review of prior works. In Chapter 3 and 4, we discuss our new algorithms for constructing small backbones for ad-hoc wireless network. And finally in chapter 6, we conclude with some future works.

Chapter 2

Review of Prior Works

Survey comes hear

2.1 Section name

write ....

2.2 Conclusion

This chapter provided details of the some of the existing distributed algorithms for constructing a CDS in wireless ad-hoc networks. The results of these evaluations are summarized in table cut from here. In next chapter, we discuss our distributed Algorithm I, for constructing a small backbone in ad-hoc wireless network.

Chapter 3

Algorithm I

give details of your algorithm

3.1 Conclusion

In this chapter, we proposed a distributed algorithm for construction of xyz. The complexity of this algorithm is $O(n \log n)$. Next chapter presents another distributed algorithm which has linear time complexity based on xyz.

Chapter 4

Algorithm II

The algorithm presented in previous chapter has $O(n)$ time complexity. We further propose another distributed algorithm in this chapter based on xyz which has linear time complexity.

4.1 Construction

Write ...

4.2 Improved Method

Write...

4.3 Conclusion

In this chapter, we proposed another distributed algorithm for XYZ. This algorithm has both time complexity of $O(n)$ where n is the total number of nodes. In next chapter, we conclude and discuss some of the future aspects.

Chapter 5

Conclusion and Future Work

write results of your thesis and future work.

References

[1] H. A. Omar, K. Abboud, N. Cheng, K. R. Malekshan, A. T. Gamage, and W. Zhuang, "A survey on high efficiency wireless local area networks: Next generation wifi," *IEEE Communications Surveys Tutorials*, vol. 18, no. 4, pp. 2315–2344, Fourthquarter 2016.