[WriteUps - Google Docs](https://docs.google.com/document/d/16PpAJAkeyYwPqoCq4EW12ShfsF8GhDlFpE17fr7PGlU/edit)

**Image Visible Masking/Watermark Removal with Graph Neural Network**

In this blog post, we explain the GCN-LP model and apply it to remove water marks imposed on images. Our Google Colab Notebook can be accessed [here](https://github.com/luoshaoyang/cs224w_final_proj).

*By Haishan Gao and Shaoyang Luo as part of the Stanford CS224W course project.*

# **Introduction**

Many types of data can be interpreted as graphs. Examples include computer networks, molecules, food webs, disease paths, social networks, and public transportation systems…

# **Table of Contents**

Here’s a quick overview of what’s in this post:

* Explanation of GCN-LP…

# **Graph ML Models: LP, GCN, and GCN-LP**

In this section, we will first cover the mechanism behind LPA, then GCN, and finally GCN-LP for the problem of node classification…

## Notation Introduction

We begin by introducing…

## LP

The Label Propagation Algorithm (LPA) [2] is a graph ML technique that can be used to classify nodes…

## GCN

A graph convolutional network (GCN) [3] is a specific instance of a graph neural network…

## GCN-LP

One drawback of GCNs is that the aggregation function treats all neighbors equally…

# **Applying GCN-LPA to Detect Illicit Bitcoin Transactions**

Now that we have covered the GCN-LP m

# **Dataset**

We use the …

# **Code Walkthrough**

Now let’s dive into our GCN-LP model…

# **Discussion of Results**

The table below summarizes…

# **Conclusion**

Our results demonstrate…

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