

# Efficient Image Compression

**James Camacho**

MIT / AI

jamesc03@mit.edu

**Linda He**

Harvard / Applied Mathematics

lindahe@college.harvard.edu

## Abstract

In high-dimensional spaces such as images, perfect communication becomes prohibitively expensive. A lossy but compressed version is cheaper to transmit and often good enough for most purposes. Traditional algorithms for this such as JPEG use a Fourier transform to pick out the important features for transmission. In this paper, we explore using auto-encoders and raster-encoders (pixel-by-pixel autoregression) to automatically and efficiently compress images instead. We find they significantly outperform JPEG on the MNIST dataset, and discuss potential future improvements to their speed and cost via reinforcement learning.

## 1 Introduction

The overwhelming majority of internet traffic comes in the form of video ([Cisco, 2018](#)).

## 2 Related Work

## 3 Methods

## 4 Discussion

Testing this: This is some text with a citation ([Lazaridou et al., 2020](#)).

## Acknowledgments

## References

Cisco. 2018. [Global device growth and traffic profiles](#).

Angeliki Lazaridou, Anna Potapenko, and Olivier Tieleman. 2020. [Multi-agent communication meets natural language: Synergies between functional and structural language learning](#). In *Proceedings of the 58th Annual Meeting of the Association for Computational Linguistics*, pages 7663–7674, Online. Association for Computational Linguistics.

## A Example Appendix

This is an appendix.