Math 214 Linear Algebra Project 4 Capstone Initial Proposal

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1 Area of Study

These days, it is commonplace to share hundreds if not thousands of pictures over the internet each day, whether through social media, Zoom calls, or sharing pictures of your spring break trip with your family. Storing and sending this many images takes a lot of storage and internet bandwidth, so it is hugely important to reduce the original size of digital images while retaining as much of the information enclosed as possible. We wish to explore the application of Linear Algebra in digital image compression, specifically the methods using wavelet-based algorithms. Our goal is to look at how the JPEG-2000 compression standard is implemented, why it performs better than older standards especially at higher compression ratios, and how the process could potentially be improved.

2 Group Members

Our group consists of the following members:

Dan Erickson - danerick - Computer Science Engineering

Jessica Zhu - jesszhu - Computer Science Engineering

Ibrahim Alnassar - alnassar - Computer Science Engineering

Tim Sawyer - tisawyer - Industrial and Operations Engineering

Josh Richman - richmajo - Data Science Engineering