# Contact information

## Name of each team member

Eli Harris, Tristan Fullmer, Ethan Nelson

The source of the data that you analyzed

# Introduction

## Describe the dataset that you chose, why the problem is interesting, what you hoped to accomplish as you began, and what you actually did accomplish.

The dataset that we chose was a dataset of black and white, and colored photos. Our goal was to use this dataset to make an algorithm to convert black and white photos to colored photos

# Data Preparation

## Describe the process of gathering, pre-processing, and otherwise preparing the data for analysis.

In order to pre-process our data we need to get the RGB values out of the image then convert the RGB values to LAB. we also might have to compress or stretch the data so they are all the same array size.

## Include examples of why this dataset was non-trivial and how you overcame these challenges.

Our dataset is non-trivial in a few way, one being the fact that the values are stored in a 3D array. Neural networks, at least to our understanding, are not easily able to handle 3D arrays. One way we are going to try to overcome this is to convert our data to a 2D array or a vector then revert the results back to a 3D array

# Mining / learning from the data

## Describe the process you used to mine the data, or learn patterns from it. What algorithms did you try, why did you try them? What parameters did you use and why?

Our data was gathered from various image sets and Google Images. We wanted our algorithm to learn from a diverse set so that it could predict more general images. We started with a neural network because we are predicting something really complicated where we don’t really understand the patterns we are looking for. As far as parameters, we used similar layers to a previous project that someone else had done so we could get the kinds of results that we wanted. The epochs started low for us and keep going up as we figure out how long each training cycle takes.

## Make sure to discuss different things you tried along the way, even if they resulted in dead ends.

We tried a number of different configurations for the neural network to get it to learn off of an image. Many of the things we tried were just to fit our data into the convolutional neural network. That part in particular took a lot of time because we didn’t fully understand how our data was formatted, or how the algorithm expected our data to be formatted.

## Highlight challenges you faced and how you overcame them.

The biggest challenge we faced was getting the algorithm to learn more than a few colored lines. This was fixed by looping through our data set and training the algorithm iteratively with each image of our data set.

# Results

## Present the results that you obtained from the work done in the previous sections.

## Include graphs and charts to support your findings. (Don't forget to include proper titles, axis labels, etc. for all graphs)

# Conclusions (including business takeaways and action items)

## Describe why your results could be of value to a business or stakeholder in your area.

## What would they know or what could they do differently as a result of your work.

## Explain why your results constitute something "interesting."

## Don't forget to discuss potential limitations or ethical issues.

# Lessons Learned

## What did you learn from this project?

## What would you do differently if you could start this project again?