



Enhancing Image Quality Using an Autoencoder

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Motivation





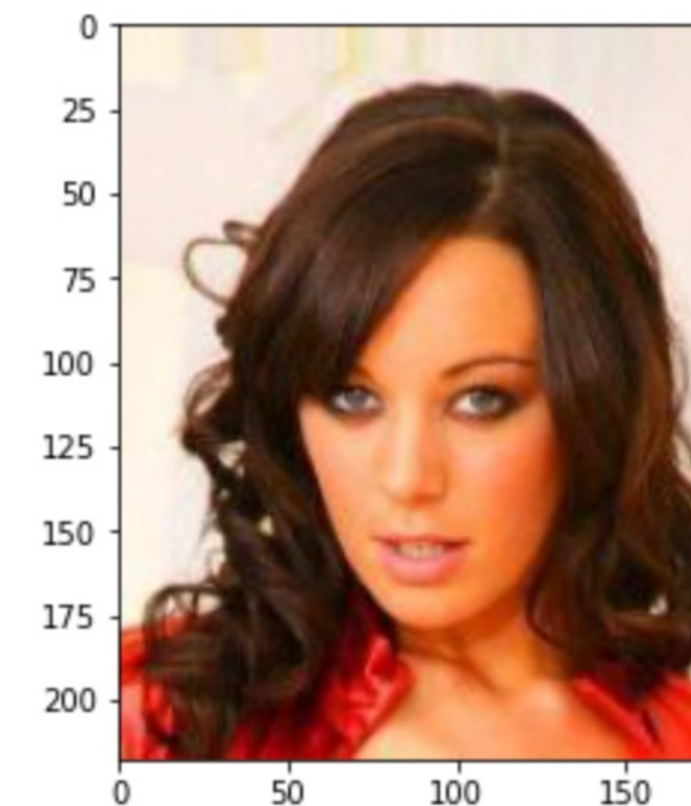
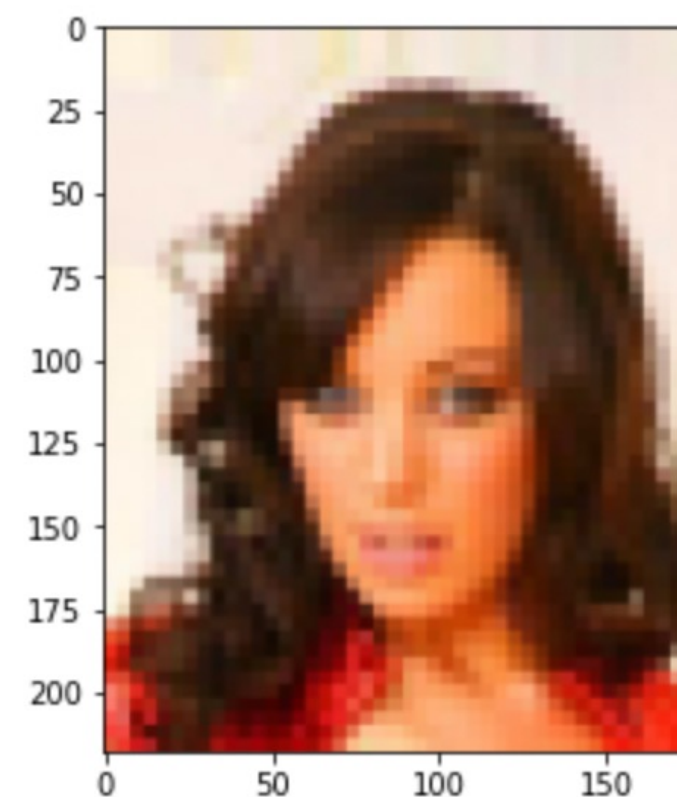
- Downloading pictures from social media does not give you the original pictures
- As a result, it is difficult to use the photo again for other uses
- This project aims to enhance the quality of images

Methods

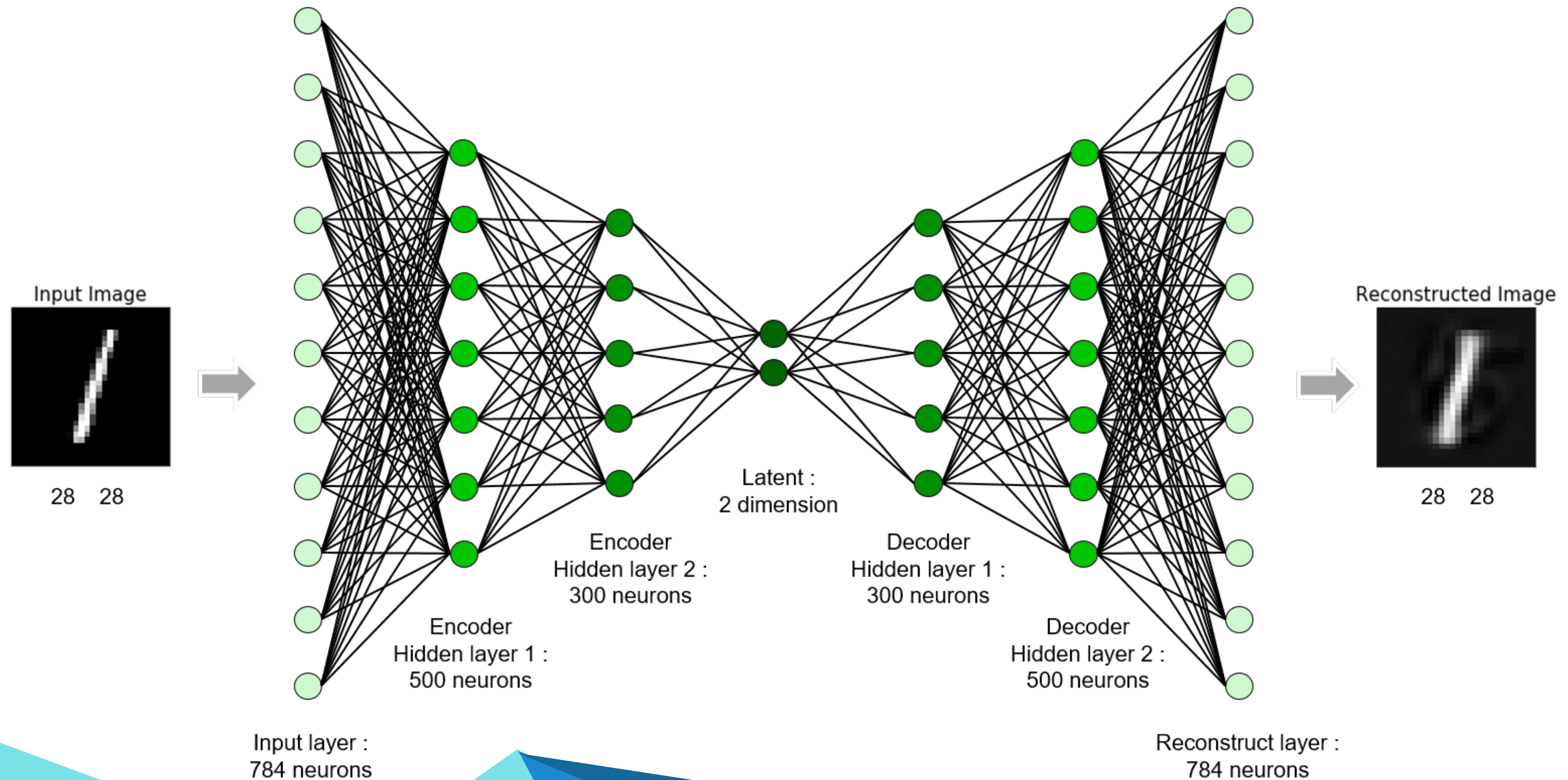


Data Preprocessing

Celebrity Face Dataset	Low Resolution	Original
Train Dataset	800 218 X 178 X 3 images	800 218 X 178 X 3 images
Test Dataset	200 218 X 178 X 3 images	200 218 X 178 X 3 images



Model: Autoencoder



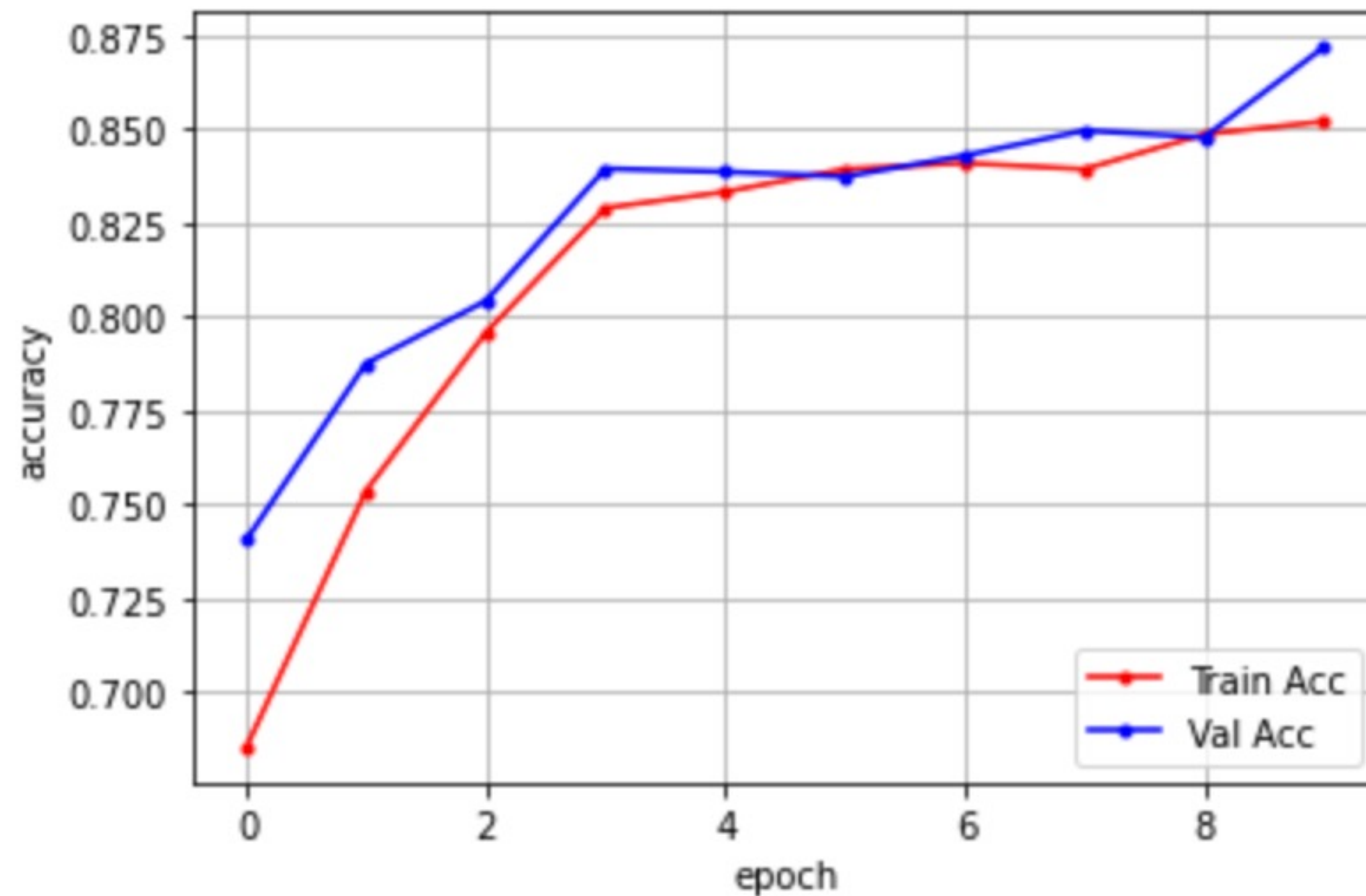
Code Walkthrough



Results

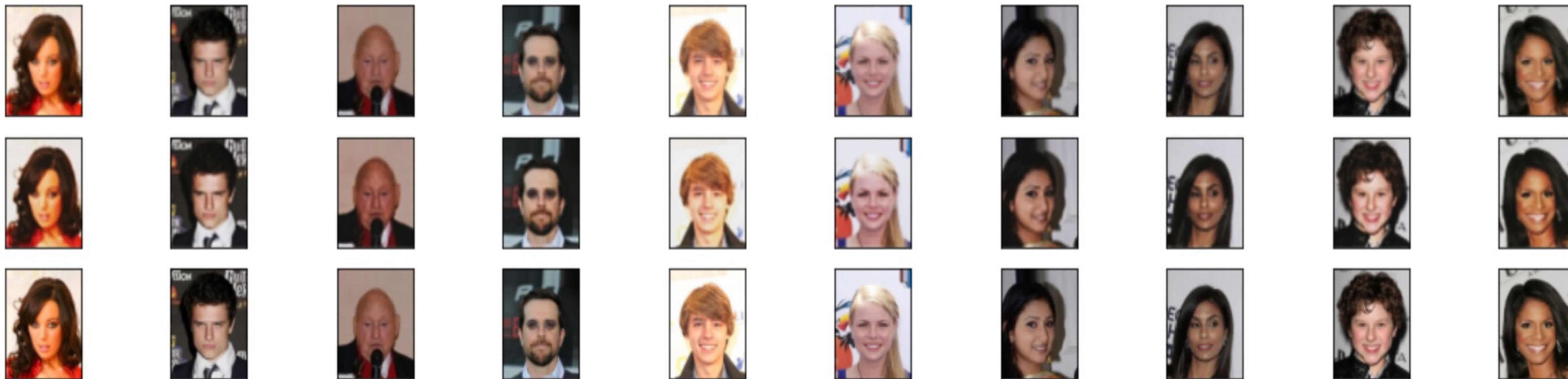


Training Acc vs Val Acc



- The validation accuracy is very close to the training accuracy
- Probably due to the fact that the images in both the validation dataset and training dataset are pictures of celebrities (bias)

Evaluation on Test dataset



Closer Look at Comparison



Conclusion



- We saw a significant improvement compared to the input (low resolution image)
- However, the enhanced output of the image was not as good as the original image yet
- We could try more parameters, or train with more datasets if we have better computing powers
- We could try to explore other methods such as super scaling through GANs



Just for Fun

Low resolution



Zoomed



Predicted



- Two inputs into the same autoencoder model
- Outputs an enhanced quality image with somewhat of a ghosting contour



Thank you!

