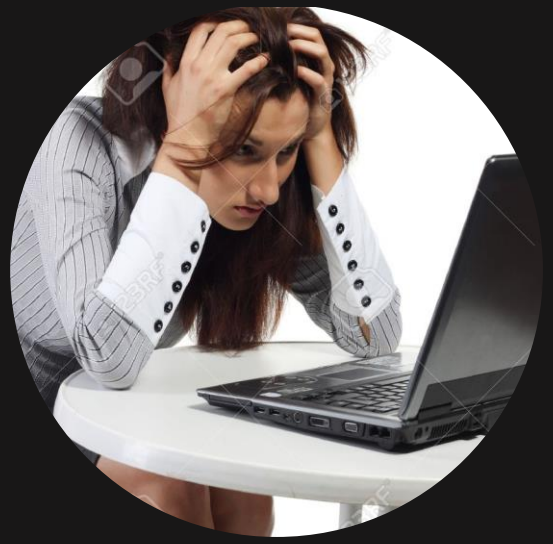
NEURAL STYLE TRANSFER OF ASIAN PAINTING

Boon Jun

PROBLEMS?



Long Duration Manual Work

Talent Dependent

Highly Competitive

MAKE DIGITAL CONTENT GENERATION EASY

FOR

DESIGN COMPANY

HOW?

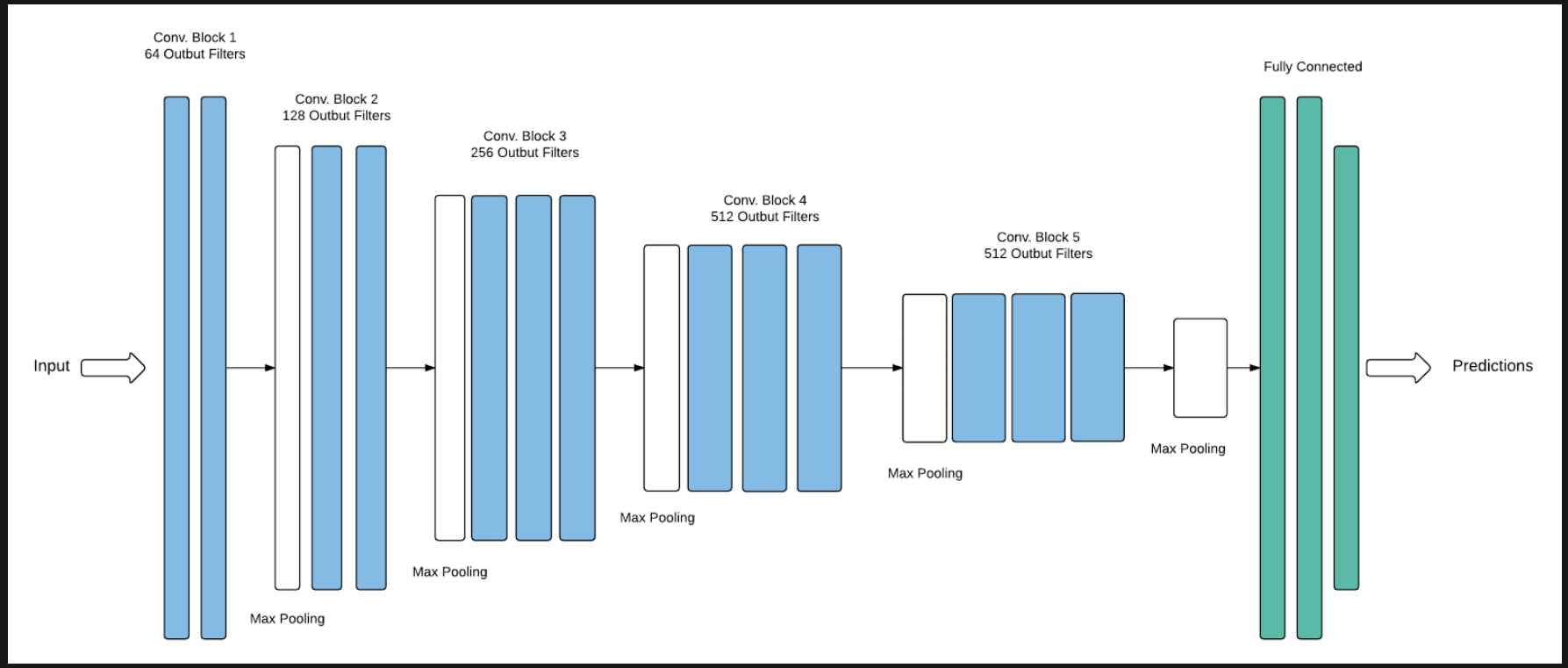
+

=

WITH Convolutional Neural Network

HOW?

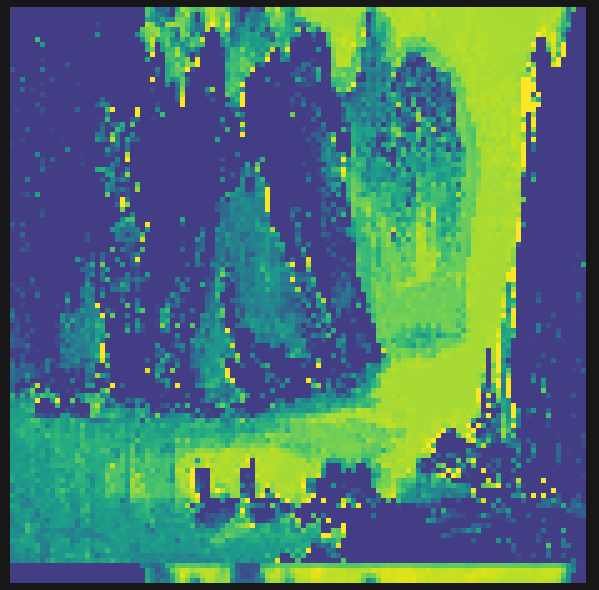
VVG19



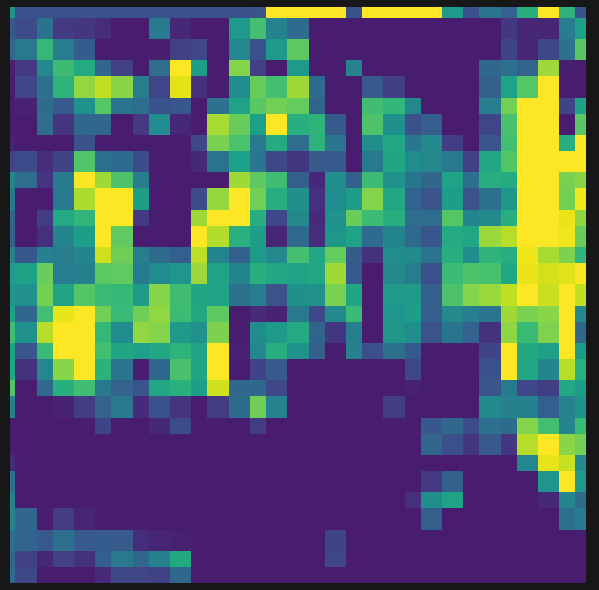
Trained to extract different image features on it owns

HOW?

Layer 1



Layer 5



3 NEURAL STYLE TRANSFER (NST) MODELS

Model 1

Original NST

Model 2

Transfer Learning

Model 3

Autoencoder + WCT

MODEL 2

Dataset

100 Chinese Painting

8 categories

Augmentation

944 paintings

Avg 100/categories

Transfer Learning

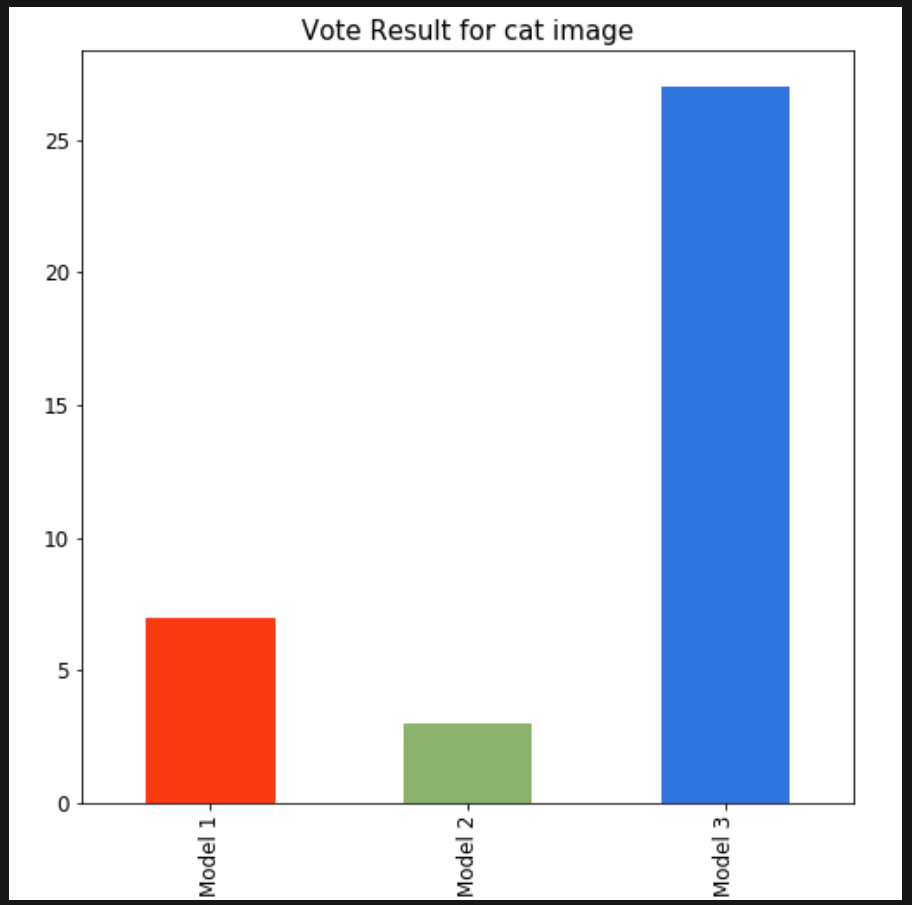
Training accuracy: 0.99

Validation accuracy: 0.93

EVALUATION

Based on 37 votes from google form

EVALUATION



Content Image

Style Image

Model 1

Model 2

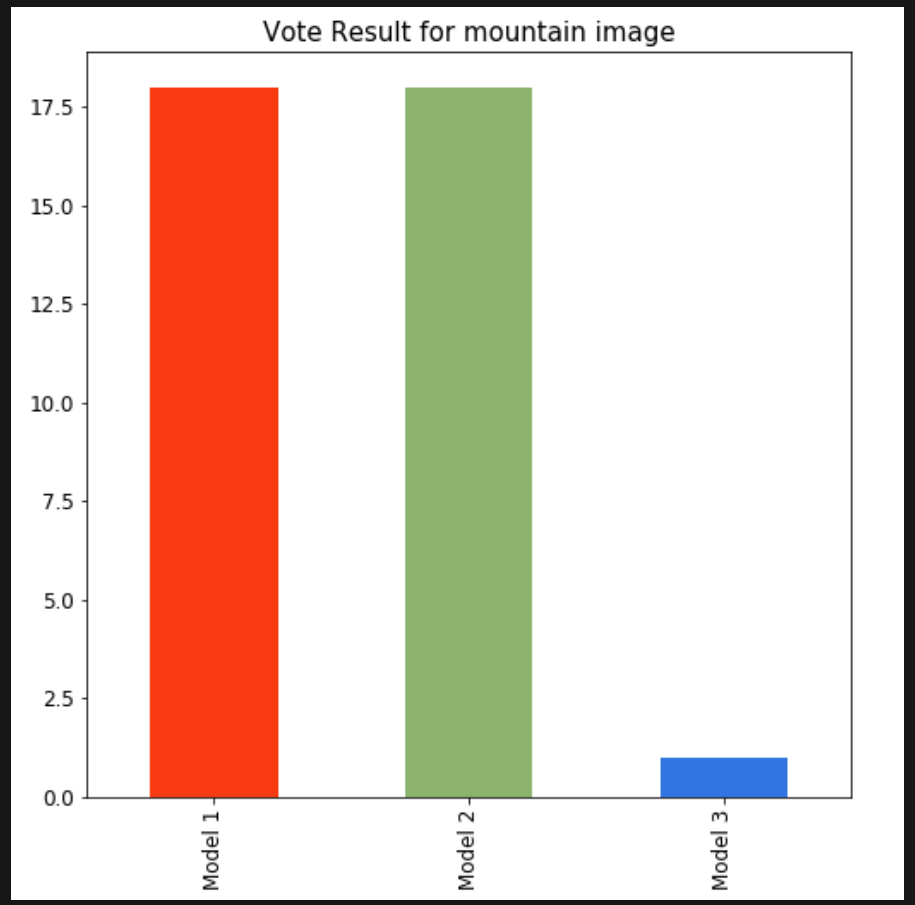
Model 3

0

0

1

EVALUATION



Content Image

Style Image

Model 1

1

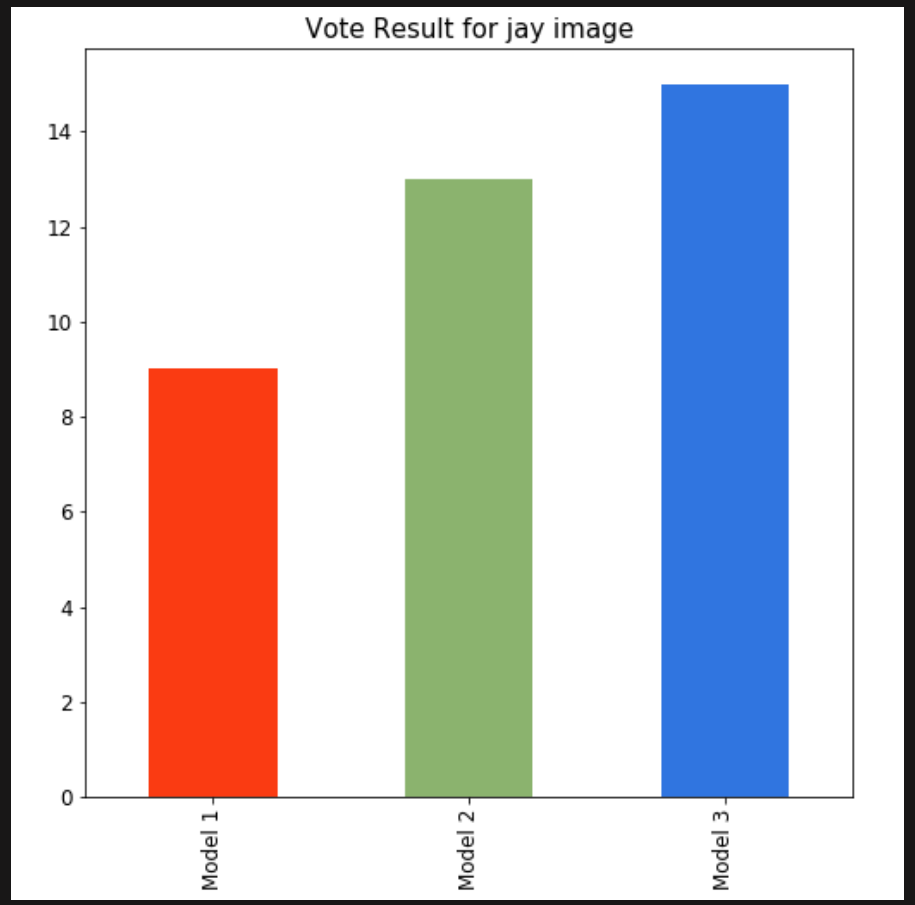
Model 2

1

Model 3

1

EVALUATION



Content Image

Style Image

Model 1

Model 2

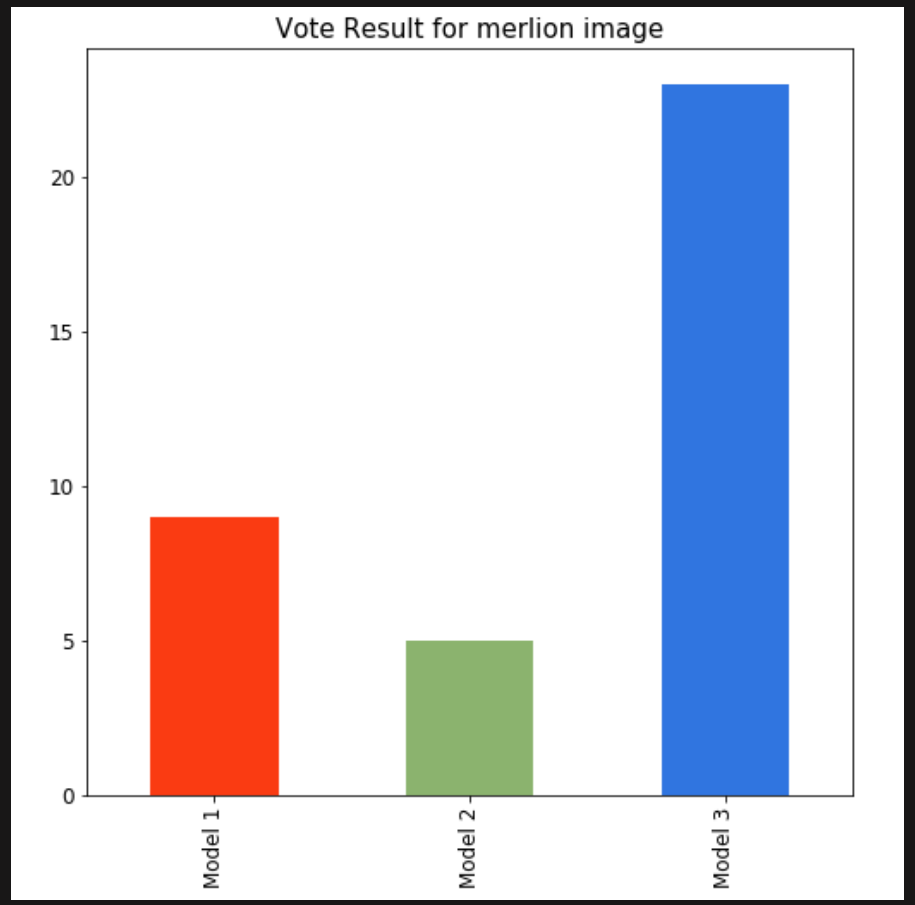
Model 3

1

1

2

EVALUATION



Content Image

Style Image

Model 1

Model 2

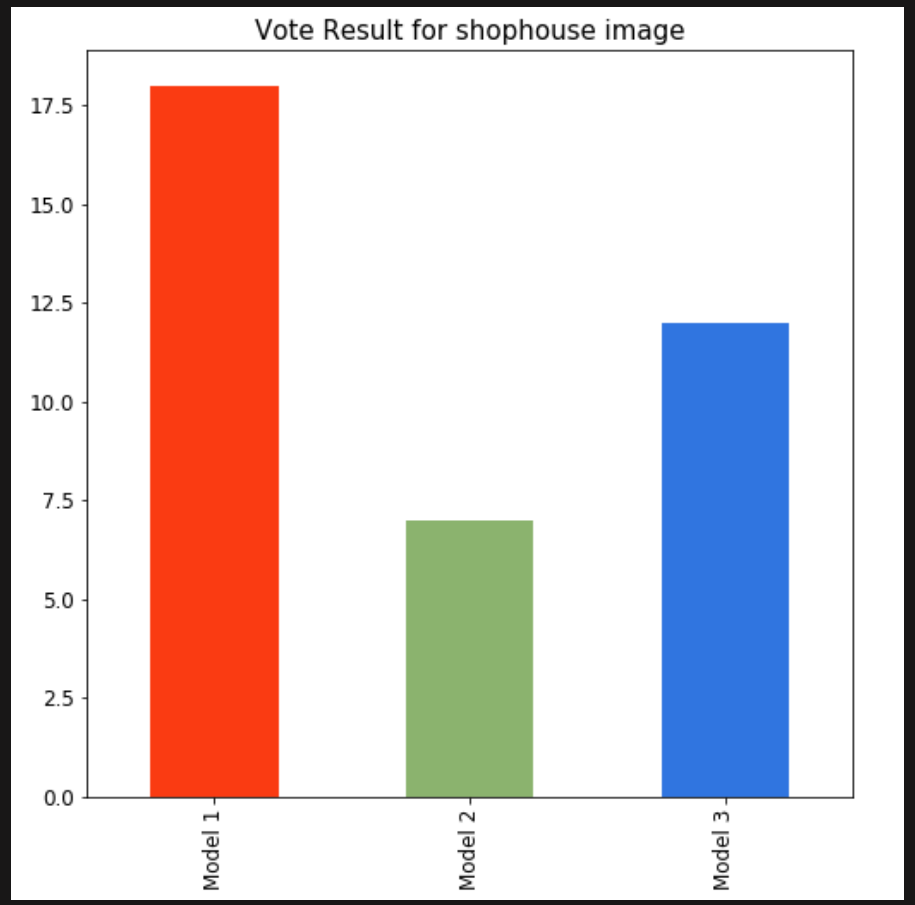
Model 3

1

1

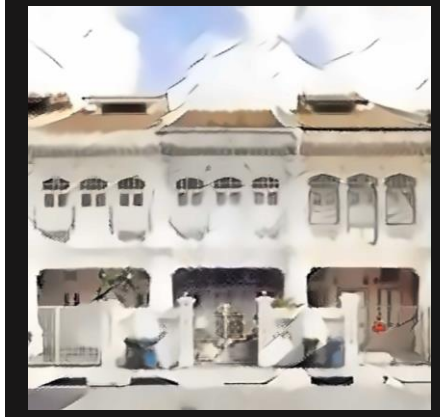
3

EVALUATION



Content Image

Style Image



Model 1

Model 2

Model 3

2

1

3

CONCLUSION

Model 1

2

Model 2

1

Model 3

3

RECOMMENDATIONS

Include more techniques to control the style transfer

Improve image resolutions for high quality printing

Optimise model run time with GPU

Real time NST for video/webcam

THANK YOU