Identifying Chinese Calligraphers Based on Their Characters:
A manifold-learning approach

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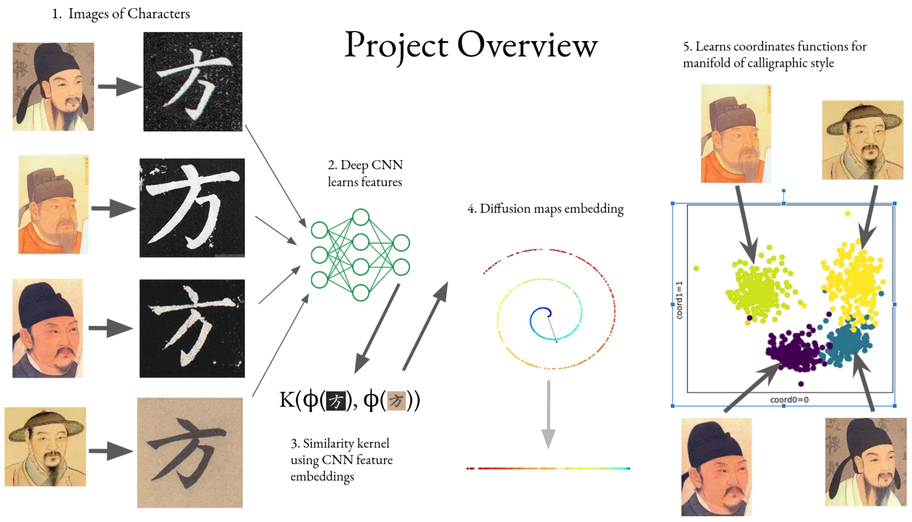
1) Can a deep network differentiate calligraphers to reveal a manifold of calligraphic style?
2) If so, what would this tell us about how humans perform this task?
3) Is the computer truly learning styles or just memorizing image fragments?

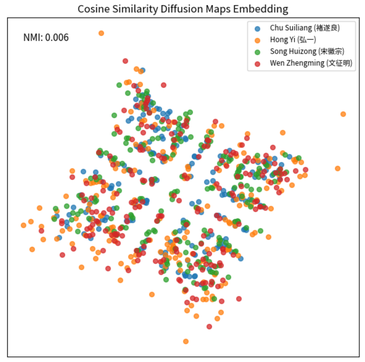
Project Overview



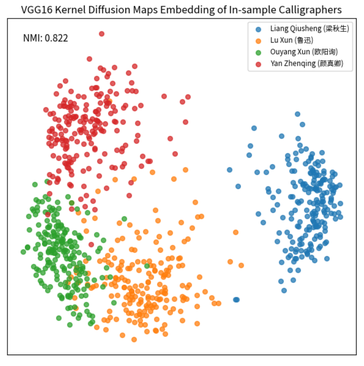
Data

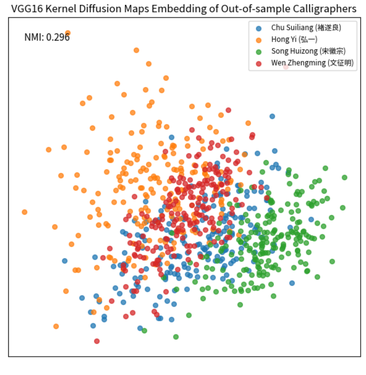
Preliminary Results

Trivial Kernel



Intermediate Activation of VGG16
(trained on 15/20 calligraphers in training data)

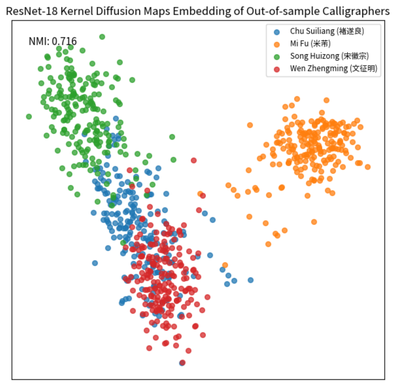




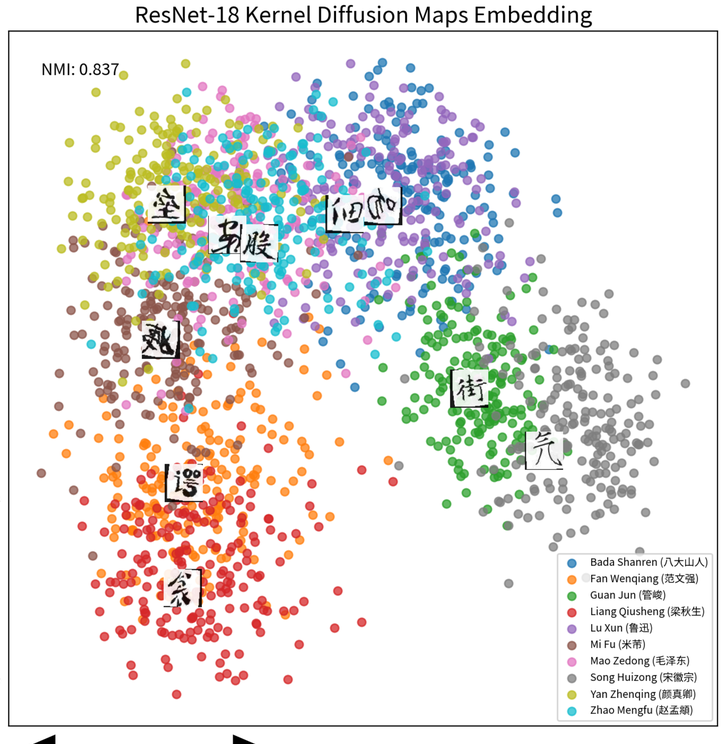
VGG16 kernel does not generalize to unseen calligraphers
⇒ this is not a manifold of calligraphic style!

Final Results

ResNet-18



Using a more advanced network, we have found a manifold of style that does generalize to calligraphers outside of the test set!



References

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