Low-Rank Adaptations for increased Generalization in Foundation Model features

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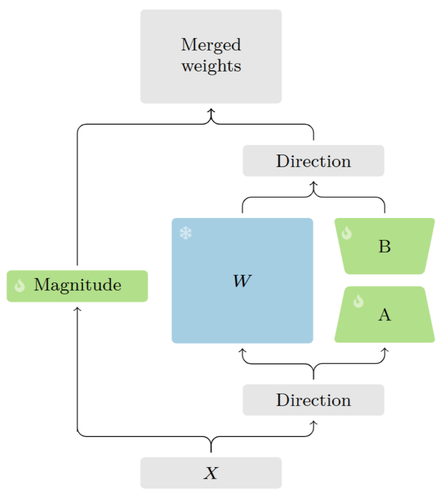
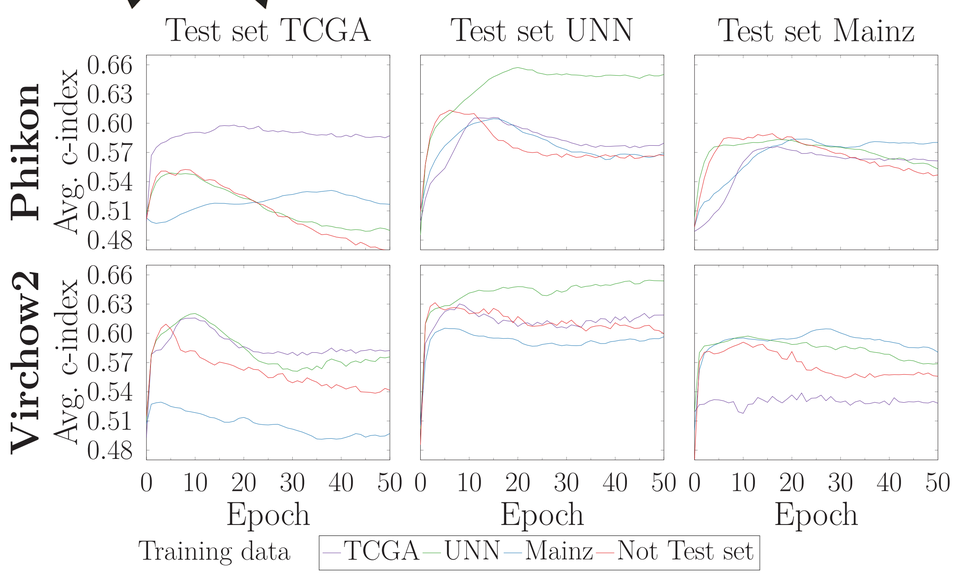
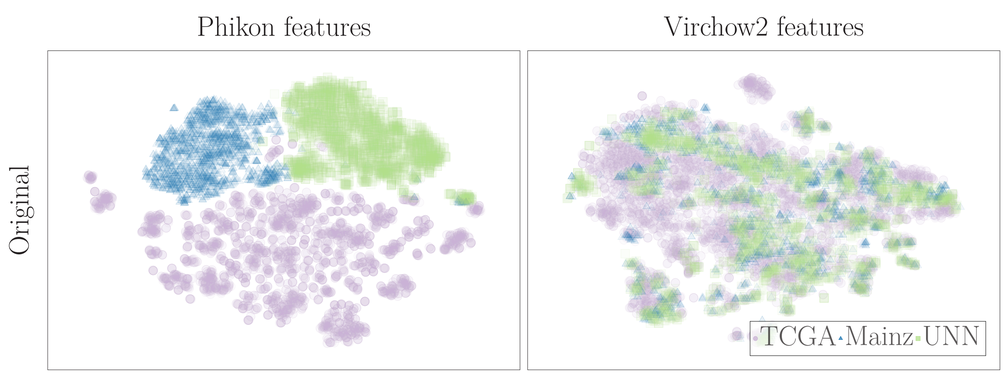
Motivation

- Are current FMs robust?
- Improve feature generalization using DoRA + augmentations

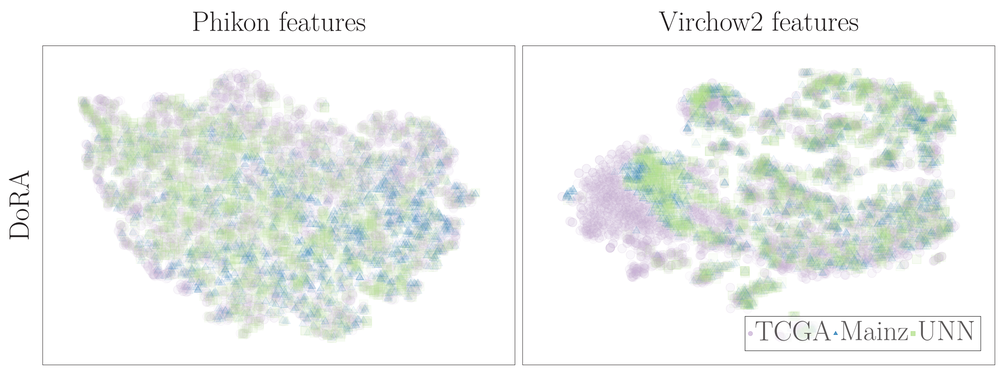


FOUNDATION MODELS ARE NOT ROBUST



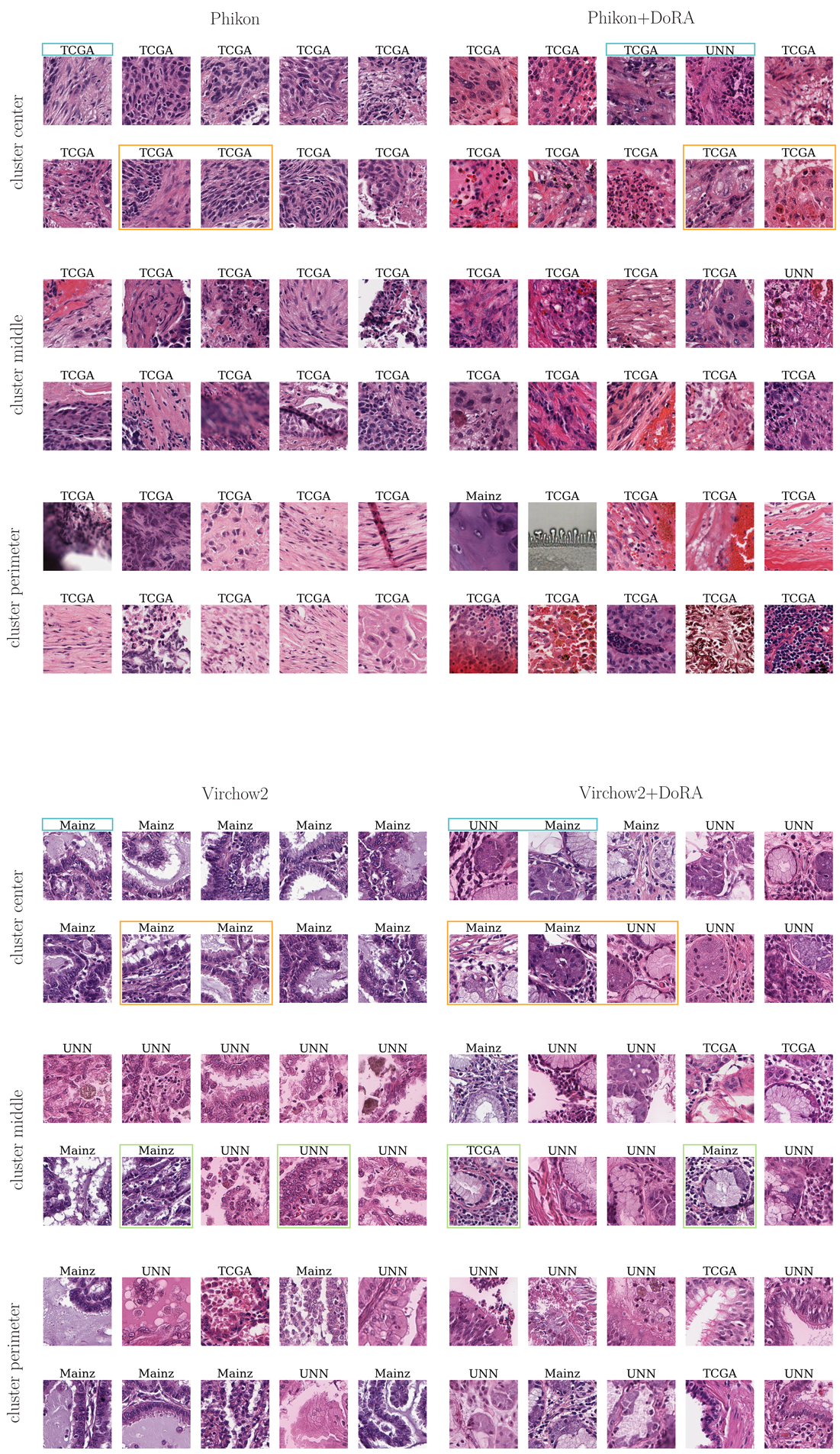


t-SNE from DoRA features



Visual Inspections

- Color
- Dataset origin
- Biological similarities



Conclusion

- Robustness testing
- DoRA training improves feature robustness across domains
- Explore further solutions to improve FM robustness

References

1 Filiot, Alexandre, et al. "Scaling self-supervised learning for histopathology with masked image modeling." MedRxiv (2023): 2023-07.

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3 Liu, Shih-Yang, et al. "Dora: Weight-decomposed low-rank adaptation." Forty-first International Conference on Machine Learning. 2024.