

Some pitfalls and suggested practices

- **Negative (background) set matters** for performance and interpretation!
- Train and test on **unbalanced set ups. Report appropriate measures.**
- **Multi-tasking** almost always helps. Can get tricky if tasks are very distinct
- No such thing as “default” architectures/params. **Always search and fine-tune.** But, good **seed architectures** can be found for specific problems.
- Can encode and utilize **prior knowledge** by soft or hard initialization of filters (e.g. using known motifs) which may help with small datasets
- Always helps to train on augmented data (e.g. jittering)
- Always learn **multiple models**
 - Multiple folds, genomic window sizes, architectures, random seeds, negative sets
- Interpretation: **Obtain robustness estimates** on predictive patterns from ISM/gradients/DeepLIFT
 - Test effect of jittering inputs
 - Test effect of different equivalently predictive models
 - Test effect of negative set