Unsupervised Training

Downstream Task

Quasar Continuum

Factor analysis



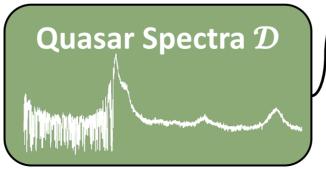
Ly α Forest

- Ly α forest modelling
- $\omega(\mathbf{z}) \sim \mathcal{N}(0, \Sigma_{\omega})$
- **Mean transmission**

 $\overline{\mathbf{T}} = \exp(-\mathbf{\tau}(\mathbf{z}))$



Quasar Factor Analysis \mathcal{M}



Generative Spectra $\mathsf{Model}\, \mathcal{M}^*$

> Maximum Likelihood **Estimation** $\max(\mathcal{L}(\overline{\mathcal{M}}))$

Continuum Inference

Model Interpretation

Out-of-distribution Detection