## Apricot model is FCN Robust-dawn is unconditionalized

Nov 17th

Robust-dawn is unconditionalized. Every other model is conditionalized





LL(trained) = 654.0, LL(Rdm) = -2666.0









## Apricot-terrain-235







## Polished-night-232











## Faithful-cosmos-237









Dataset 2 🗖 GT := Recon **5** Samples 10<sup>3</sup> Histogram 10<sup>5</sup> 10<sup>1</sup> 1.0 0.2 0.4 0.6 0.8 Sparsity Index

Robust-dawn-236

LL(trained) = -357.0, LL(Rdm) = -2722.0 LL(trained RBM data) = 351.0, LL(Rdm RBM data) = -726.0





We used fast stein correction for different temperatures. The method doesn't seem robust. The intuition behind this failure is that the method struggles if the two Boltzmann distributions don't overlap

- QVAE
  - Architectures
    - CNN
    - FCN
  - Energy incidence
    - Condition on encoder and decoder
    - Condition on encoder
    - Unconditionalized
    - Modulated energy => Can lead to learning how to modulate more features, position of voxels, angles, etc.
  - Results/metrics
    - Energy histogram
    - Sparsity histogram
    - Conditionalized energy and sparsity histogram (NOT GOOD)
- RBM
  - Topology
    - Chimera-like
    - Pegasus
  - Metrics
    - Energy distribution for encoded and RBM Gibbs samples
    - Zais and Zrais estimates for partition function => log-likelihood of model
  - Dwave
    - Sehmi's method
    - Fast stein. Not robust but could be helpful?
    - Hao's method
- Theory. Work in progress