

Raw Counts

 $Y$ 

Delta Method

 $\log(Y/s + 1)$ 

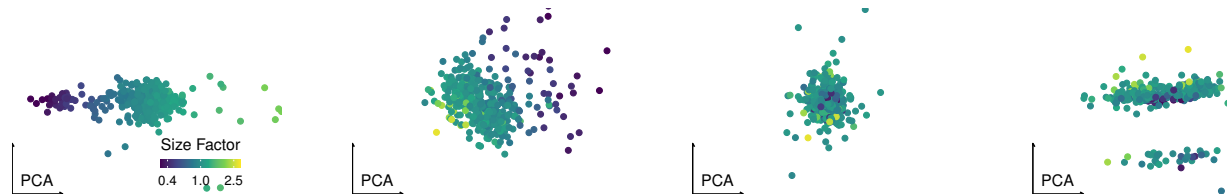
GLM Residual

$$\frac{Y - \mu}{\sqrt{\mu + \alpha \mu^2}}$$

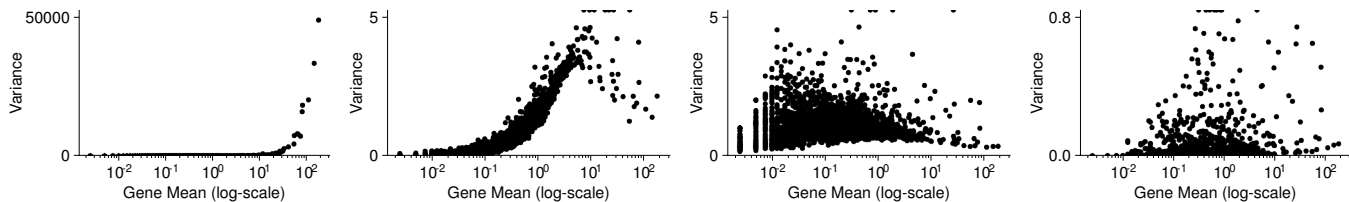
Latent Expression

 $Y \sim \text{Poisson}(M)$  $M \sim \text{LogNormal}(\mu, \sigma^2)$ 

(A) Confounding between size factors and PCA embedding of droplets encapsulating identical RNA



(B) Mean-variance relation of values for 2,597 genes of the GSE130931 dataset



(C) Distribution of values for a single gene (Sftpc) with a bimodal expression pattern in lung epithelium

