



Siddhant Mishra-Sharma (MIT/AI FI) Summer School



170

2

4



**Christopher Yau**

@cwcyau

People do realise that a variational autoencoder comes from an application of variational inference to a Bayesian latent variable model, right? It isn't an arbitrary loss function with a KL term and a tweakable parameter to balance the two?



**Julian Togelius** @togelius · Sep 22, 2021

No. I think of it as an arbitrary loss function and it works well for me. I'm in favor of arbitrary loss functions.



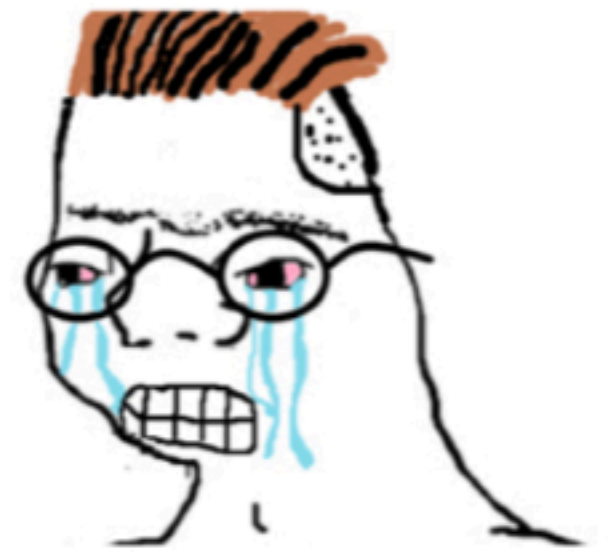
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**IQ score**

**55**

**70**

**85**

**100**

**115**



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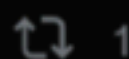


**Julian Togelius** @togelius · Sep 22, 2021

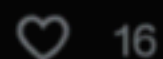
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**Yann LeCun** @ylecun · Sep 22, 2021

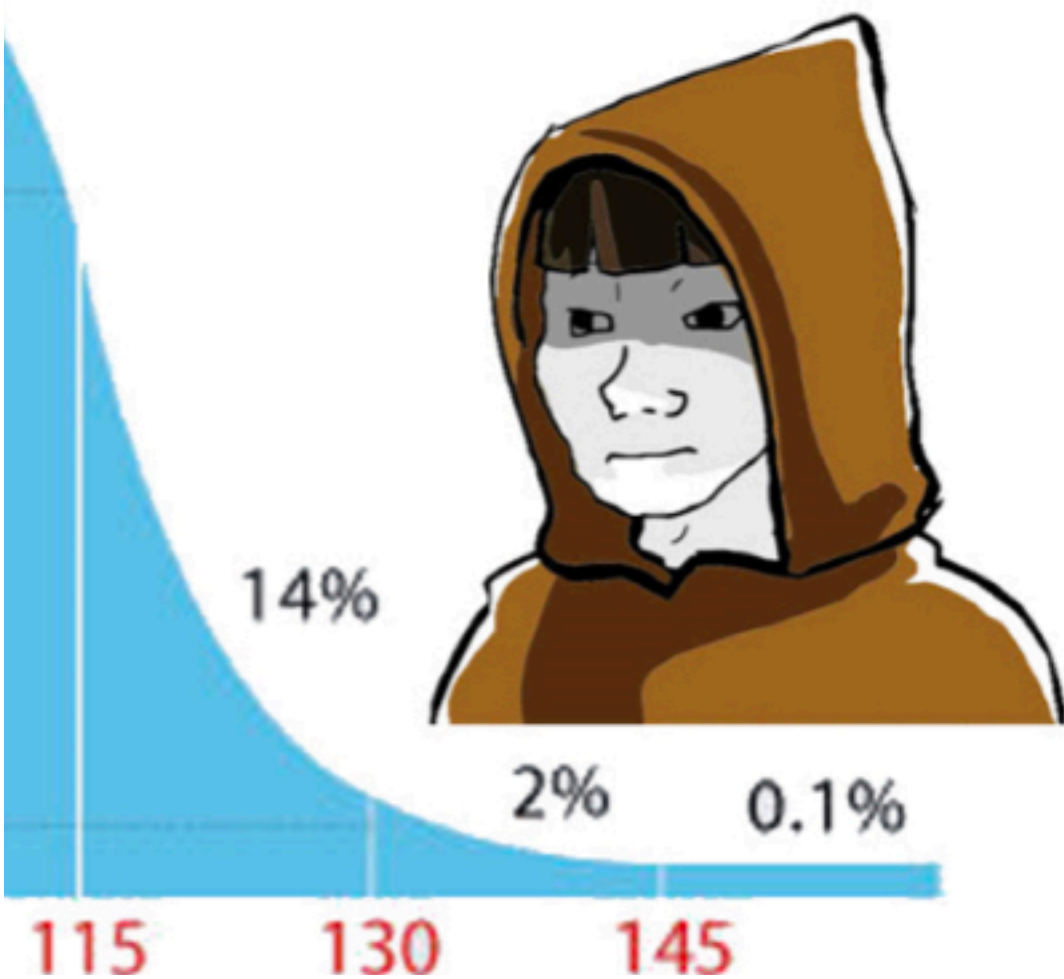
I concur.



6



4%





[https://twitter.com/cwcyau/  
status/1440434674556227591](https://twitter.com/cwcyau/status/1440434674556227591)



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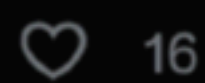
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**Yann LeCun** @ylecun · Sep 22, 2021

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<https://twitter.com/cwcyau/status/1440434674556227591>

# Variational inference

A general-purpose technique for posterior estimation

$$\overbrace{D_{\text{KL}}(q_\phi(z) \| p(z | x))}^{\geq 0} = \overbrace{\log p(x)}^{\text{Evidence}} - \overbrace{\left\langle \log p_\theta(x, z) - \log q_\phi(z) \right\rangle_{q_\phi(z)}}^{\text{Evidence Lower BOund (ELBO)}}$$

