

# Computational Statistics

## *Hyperspherical VAE*

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Presentation date>



**Lorem  
ipsum**

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2. Sampling method
3. Reparameterization Trick
4. Experiments on link prediction
5. Conclusion and Discussion



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introduire la méthode et les contributions [1]



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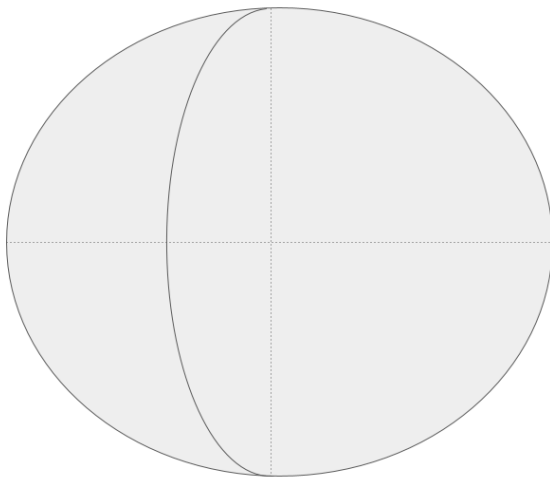
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Démontrer que la méthode de sampling marche



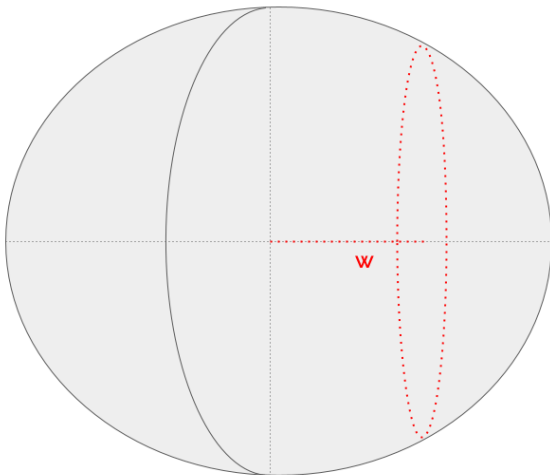
# Sampling $w$ from $g(w|\kappa, \theta)$



$S^2$  : unit sphere in  $\mathbb{R}^3$

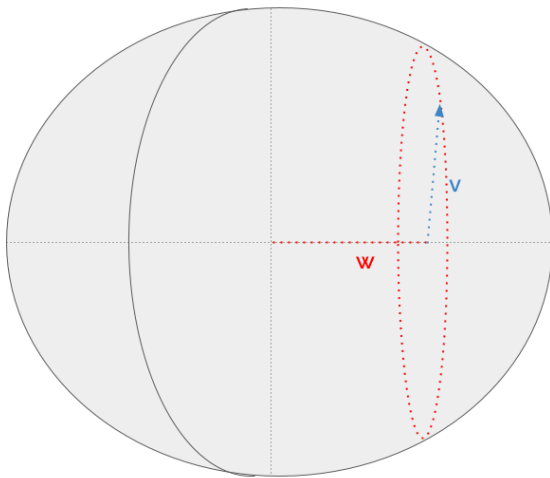


# Sampling $w$

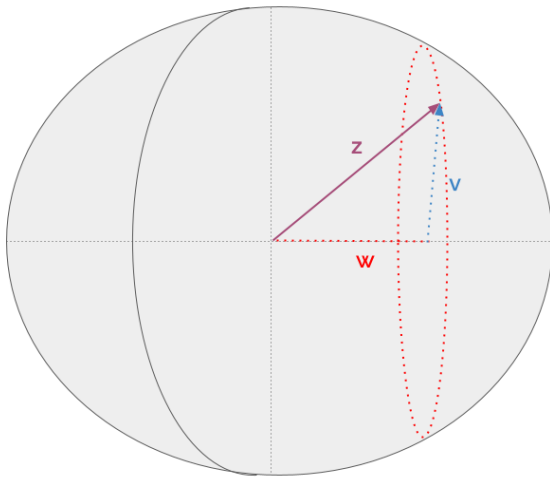




# Sampling $w$



# Sampling $w$



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# Reparameterization Trick Victor

Regarder si la démonstration de la SGD marche même avec une espérance qui dépend de  $\theta$  (reparameterization trick)

Faire des expériences : échantillonnage d'une vMF, dataset Cora



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# Experiments on link prediction

reproduire l'experience

- data (Ines)
- implementer les modèles (Victor VGAE)
- entraînement et evaluation



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Limitations à la fin : discussion sur la grande dimension  
*vanishing surface problem*  
vérifier différentes dimension de l'espace latent  
et algo vraiment utile en petite ou moyenne dimension ?







Tim R. Davidson, Luca Falorsi, Nicola De Cao, Thomas Kipf, and Jakub M. Tomczak.

Hyperspherical variational auto-encoders.

