$\nabla_\theta \log \pi_\theta (a_t | s_t):$

- $\pi(a | \mu, \Sigma) = \dfrac{1}{\sqrt{(2\pi)^P \det(\Sigma)}} \exp^{-\frac{1}{2}(a-\mu)^T \Sigma^{-1}(a-\mu)}$

- $\log \pi_\theta (a | \mu, \Sigma) = -\dfrac{1}{2}\left(P \log(2\pi) + \log\left(\prod_i \sigma_i^2\right)\right)$

$$-\dfrac{1}{2}(a-\mu)^T \Sigma^{-1}(a-\mu)$$

- $\nabla_\theta \log \pi_\theta (a | \mu, \Sigma) = -\dfrac{1}{2}\left(\nabla_\theta \log \left(\prod_i \sigma_i^2\right)\right)$

$$- \nabla_\theta \dfrac{1}{2}(a-\mu)^T \Sigma^{-1}(a-\mu)$$

$\hookrightarrow$ Automatic differentiation tool, i.e., Tensorflow

    Computes automatically.