

$$\nabla_{\theta} L \qquad \nabla \ell \qquad Dg_k \qquad Dg_{k-1} \qquad Dg_2 \qquad Dg_1$$
 Gradient
$$\frac{1 \times p}{1 \times p} = \frac{1 \times d_k}{d_k \times d_{k-1}} \qquad \frac{d_k \times d_{k-1}}{d_{k-1} \times d_{k-2}} \qquad \cdots \qquad \frac{d_2 \times d_1}{d_1 \times p} \qquad \frac{d_1 \times p}{d_2 \times d_1} \qquad \frac{\bar{g}_3^T}{d_2 \times d_1} \qquad \frac{\bar{g}_3^T}{d_2 \times d_1} \qquad \frac{d_1 \times p}{d_1 \times p}$$