$$\nabla f(\boldsymbol{\alpha}^1) \rightarrow (i_1, j_1)$$
$$\nabla f(\boldsymbol{\alpha}^2) \rightarrow (i_2, j_2)$$
$$\vdots \qquad\qquad \vdots$$
$$\nabla f(\boldsymbol{\alpha}^r) \rightarrow (i_r, j_r)$$