# Determining the Coefficients

$$f(x) = \sum_{i=1}^{N} c_i G(\|x - x_i\|)$$

can be re-written as

$$y(x) = Cg(x)$$

We would like:

$$\begin{aligned} y_1 &= Cg(x_1), \\ y_2 &= Cg(x_2), \\ &\vdots \\ y_N &= Cg(x_N) \end{aligned}$$

Combining terms,

$$[\ y_1 \quad y_2 \quad \ldots \quad y_N\ ] = C[\ g(x_1) \quad g(x_2) \quad \ldots \quad g(x_N)\ ]$$

Therefore, we choose

$$C = YG^{-1}$$