2023 - 05 - 01

Show that the simplex gradient estimate can also be written as the solution to the linear system $\,$

$$\begin{bmatrix} x_0^T & 1 \\ x_1^T & 1 \\ \vdots & \vdots \\ x_n^T & 1 \end{bmatrix} \begin{bmatrix} \hat{\nabla} f \\ \lambda \end{bmatrix} = \begin{bmatrix} f(x_0) \\ \dots \\ f(x_n) \end{bmatrix}.$$