$$\underset{P_{1:4}}{\text{minimize}} \quad f(P_{1:4}) = \int_0^1 \kappa(u)^2 du \tag{1}$$

$$\underset{P_{1:4}}{\text{minimize}} \quad f(P_{1:4}) = \int_0^1 \kappa'(u)^2 du \tag{2}$$

$$1 = \int_0^1 \kappa'(u)^2 du \tag{2}$$