Problem 2

The optimal parameters with error bars are:

$$H_0 = 68 \pm 1$$

$$\Omega_b h^2 = (2.23 \pm 0.02) \cdot 10^{-2}$$

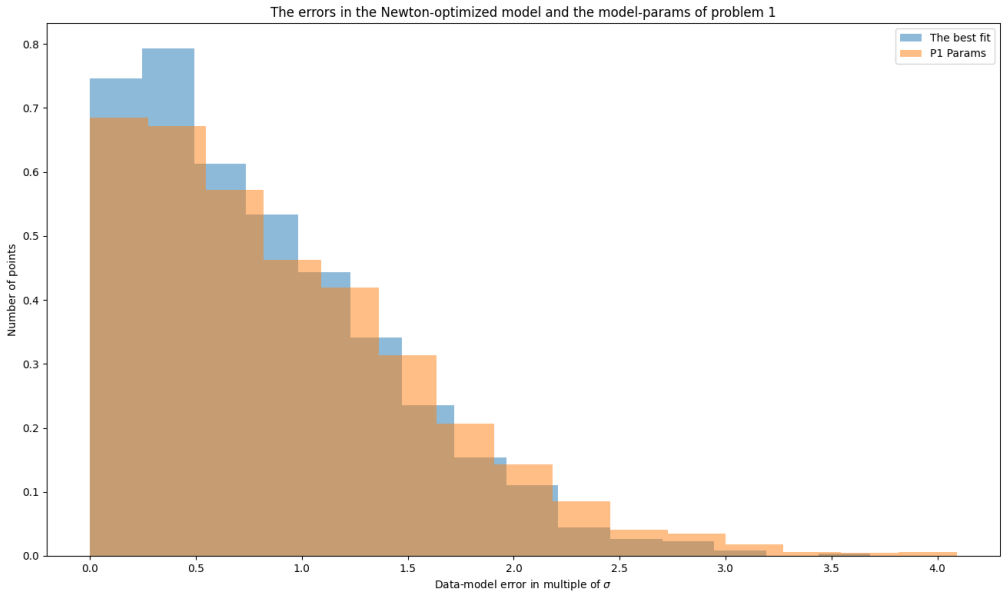
$$\Omega_c h^2 = 0.180 \pm 0.003$$

$$\tau = 0.08 \pm 0.02$$

$$A_s = (2.2 \pm 0.1) \cdot 10^{-9}$$

$$n_s = 0.972 \pm 0.007$$

With a final χ^2 of 2576.22, which is 1.06σ from the 2501 predicted by the number of degrees of freedom. Below a histogram illustrating the difference between this parameter set and the one proposed in problem 1.



Where you can notice, these new model parameters lead to more points being within 1σ of the data.