

and that is coming from this party above now **why can we get rid of that...** we can get rid of it because again if you have a function.

09:19 Thu 5. Nov

Done

Concepts
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Supervised Learning
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Probabilistic Interpretation
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ML Design Cycle
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Simple non-parametric models
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Maximum Likelihood Estimation - III

- Deriving further:

$$\begin{aligned}\log L(\theta) &= \sum_{n=1}^N \log \left(\frac{1}{\sqrt{2\pi\hat{\sigma}^2}} e^{-\frac{(y_n - \hat{y}_n)^2}{2\hat{\sigma}^2}} \right) \\ &= \sum_{n=1}^N \log \left(\frac{1}{\sqrt{2\pi\hat{\sigma}^2}} \right) + \log \left(e^{-\frac{(y_n - \hat{y}_n)^2}{2\hat{\sigma}^2}} \right)\end{aligned}$$

Handwritten notes: $\log a \cdot b = \log a + \log b$, $\operatorname{argmax}_{\theta} f(\theta)$

- Omitting the constant term above with respect to the parameters θ :

$$\operatorname{argmax}_{\theta} \log L(\theta) \approx \operatorname{argmax}_{\theta} \frac{1}{2\hat{\sigma}^2} \sum_{n=1}^N \left(y_n - \left(\theta_0 + \sum_{m=1}^M \theta_m x_m \right) \right)^2$$

Handwritten notes: $\log_e e^x = x$, \hat{y}_n