W1L1

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1 MLE

$$
\begin{aligned}
\theta_{ML} &= \underset{\theta}{\operatorname{argmax}} p(D|\theta) \\
&= \underset{\theta}{\operatorname{argmax}} \prod_{i=1}^{m} p(d_i|\theta) \\
&= \underset{\theta}{\operatorname{argmax}} \prod_{i=1}^{m} \frac{1}{\sqrt{2\pi\sigma^2}} e^{-[\frac{1}{2\sigma^2}(y_i-\hat{y}_i)^2]} \\
\text{logged } \theta_{ML} &= \underset{\theta}{\operatorname{argmax}} \sum_{i=1}^{m} \log(\frac{1}{\sqrt{2\pi\sigma^2}}) - [\frac{1}{2\sigma^2}(y_i-\hat{y}_i)^2] \\
&= \underset{\theta}{\operatorname{argmax}} \sum_{i=1}^{m} (y_i-\hat{y}_i)^2
\end{aligned}
$$