

Log-likelihood based metrics

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1 Factorized Gaussian mixture model log-likelihood

$$LL(tr^{gt}, \{tr_i^{pred}\}, \{w_i\}) = \log(\sum_{i=1}^M w_i \prod_{t=1}^T \mathcal{N}(p_t^{gt} | p_{i,t}^{pred}, \sigma^2 I)),$$

where M is the number of modes, $\sum_{i=1}^M w_i = 1$ are the mode weights, T is the number of trajectory points, $p_t \in R^2$ is one trajectory point. We use $\sigma = 1$ when evaluating predictions.

2 Corrected negative F-GMM log-likelihood

$$correctedNLL(tr^{gt}, \{tr_i^{pred}\}, \{w_i\}) = -LL(tr^{gt}, \{tr_i^{pred}\}, \{w_i\}) - T \log(2\pi\sigma^2),$$

where the first term corresponds to the log-likelihood defined above, T is the number of trajectory points. We use $\sigma = 1$ as mentioned earlier. Note that this metric minimum value is 0 which is useful for calculating an area under the rejection curve.