

Supplemental Information for Hidden Markov model analysis of fluorescence blinking in fluorescently labeled DNA

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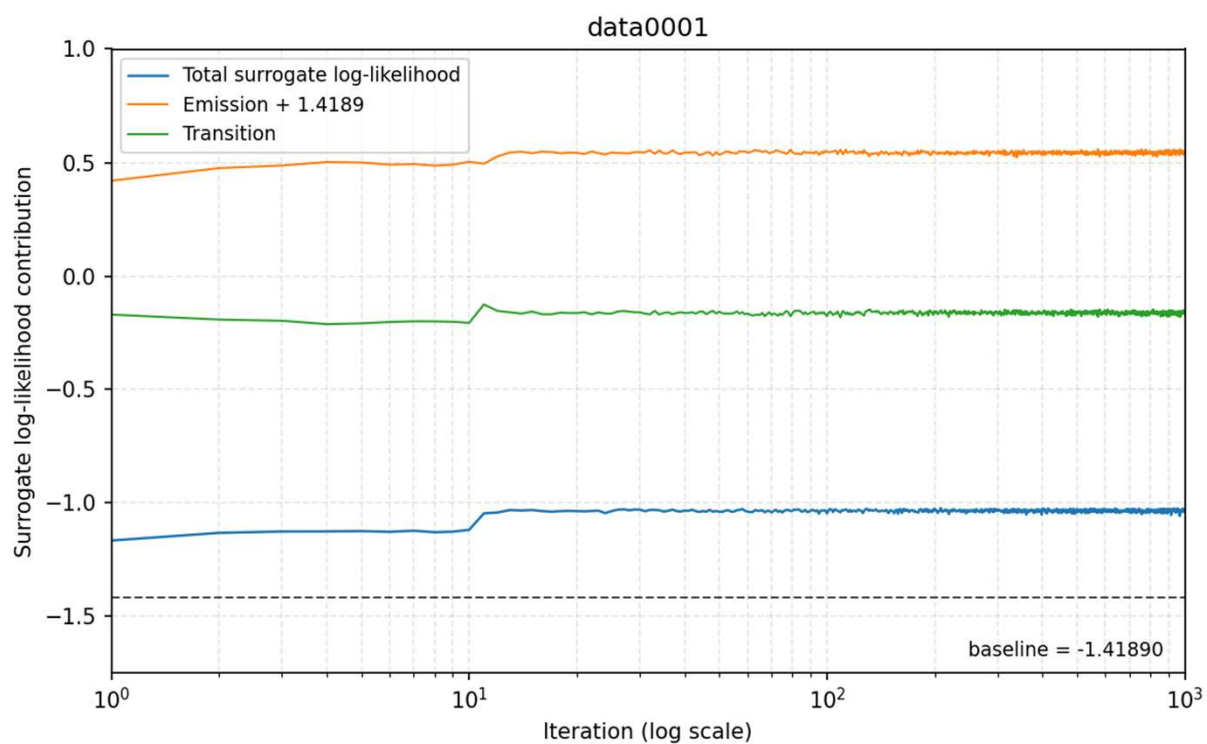
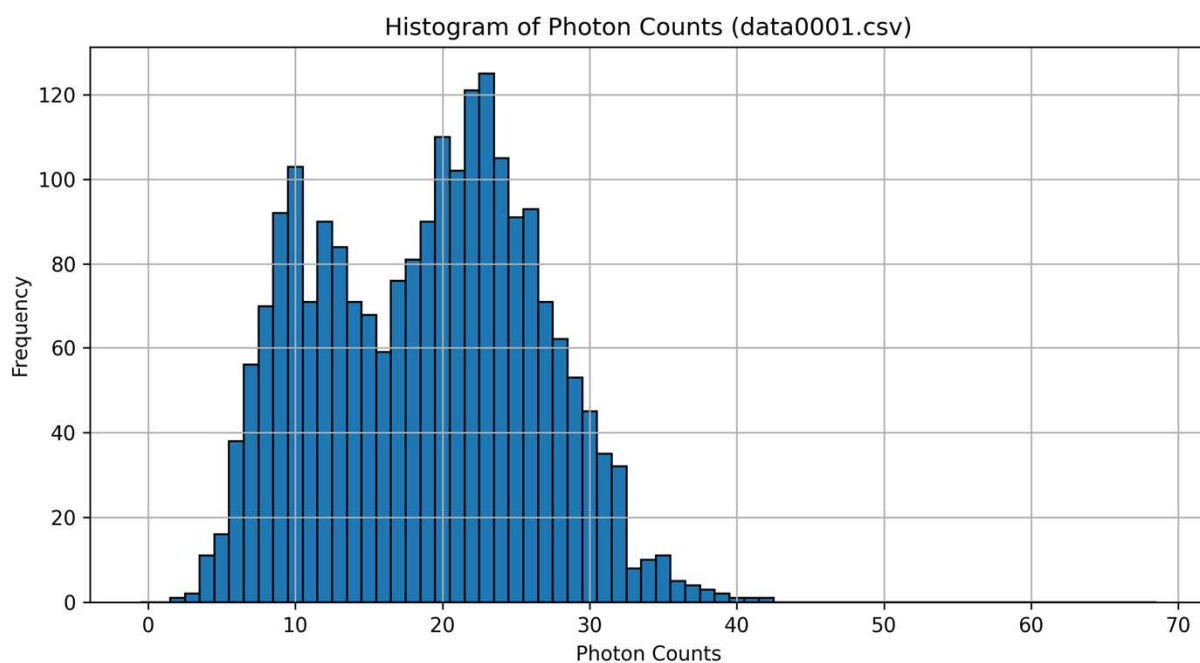
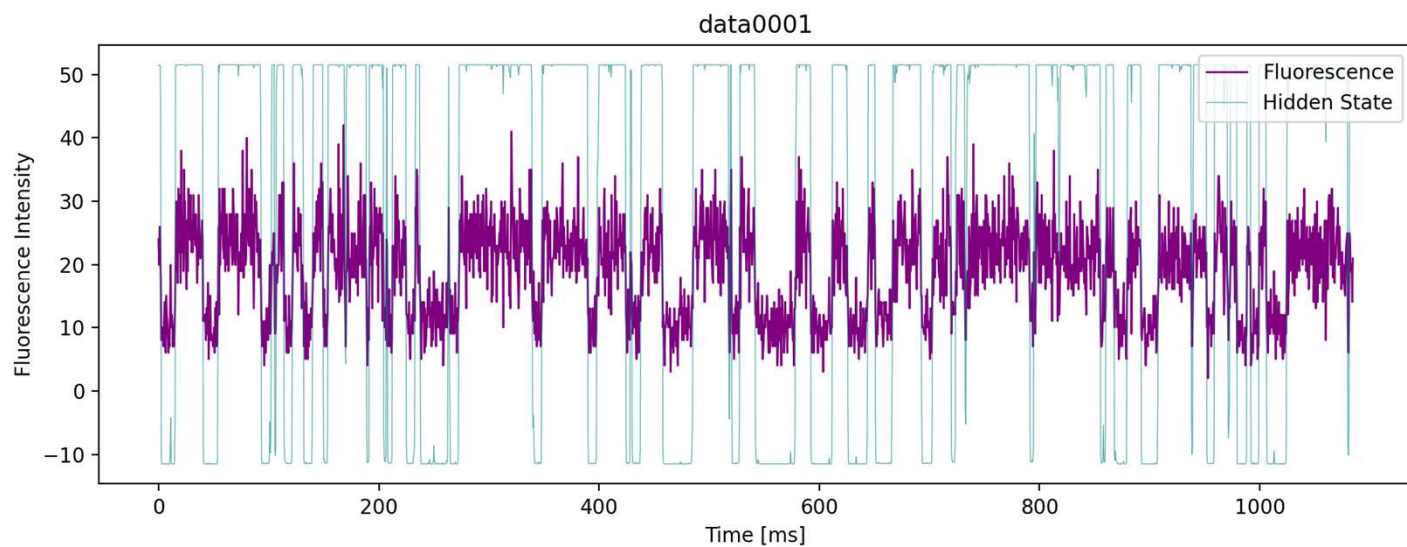
⁶Integrated Research Center for Energy and Environmental Technologies, Kyushu Institute
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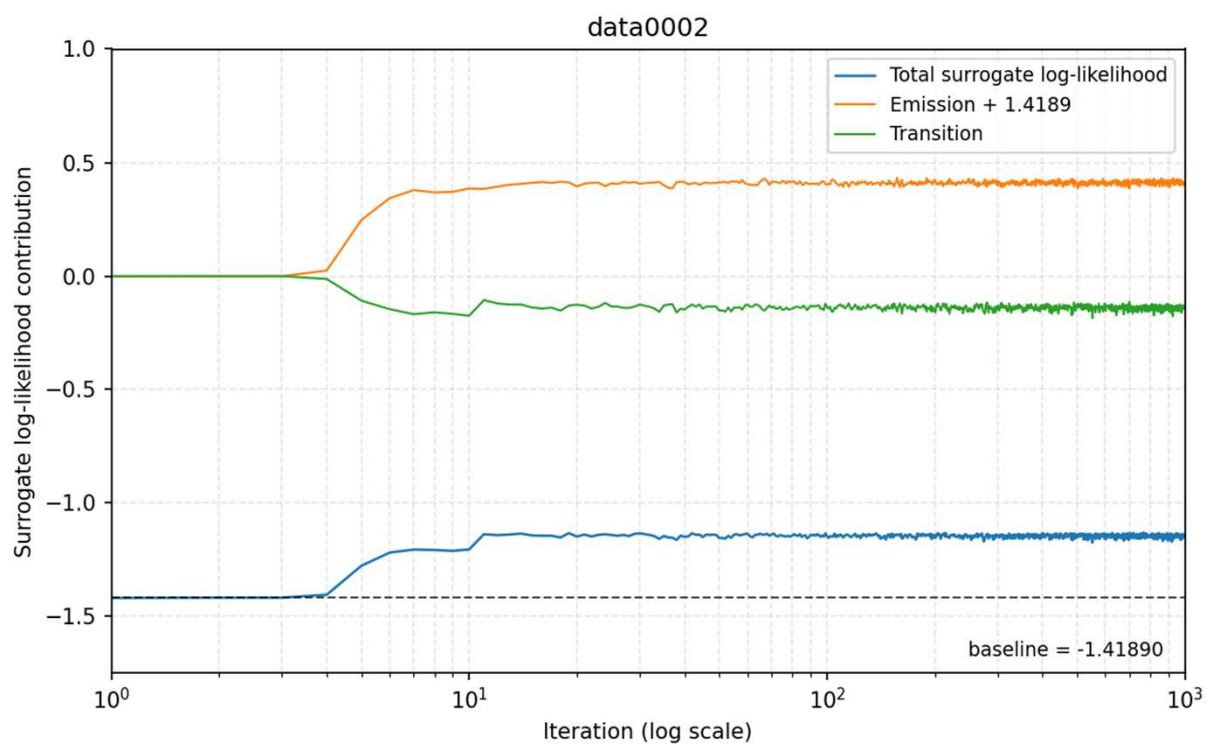
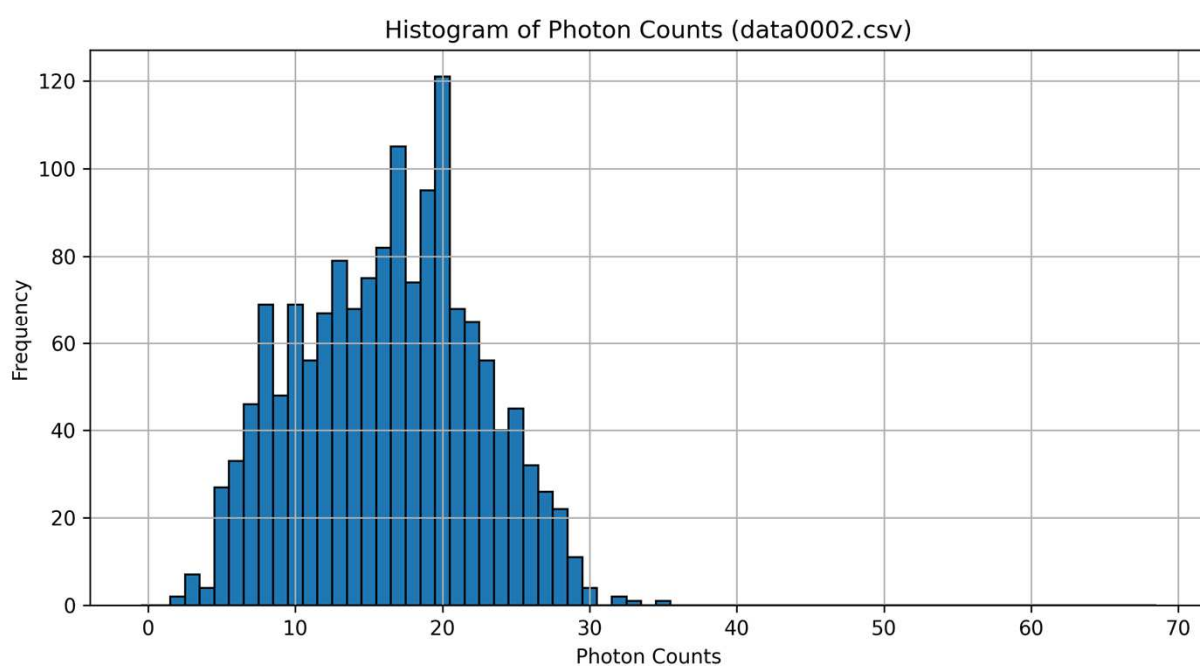
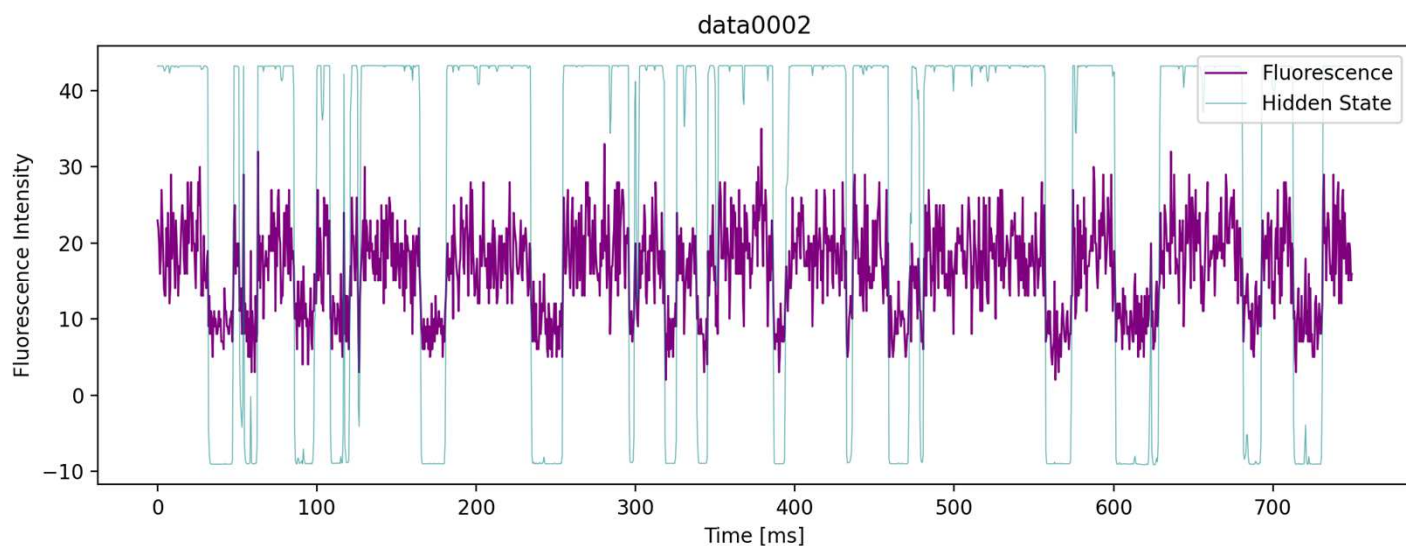
*kazuma@mns.kyutech.ac.jp

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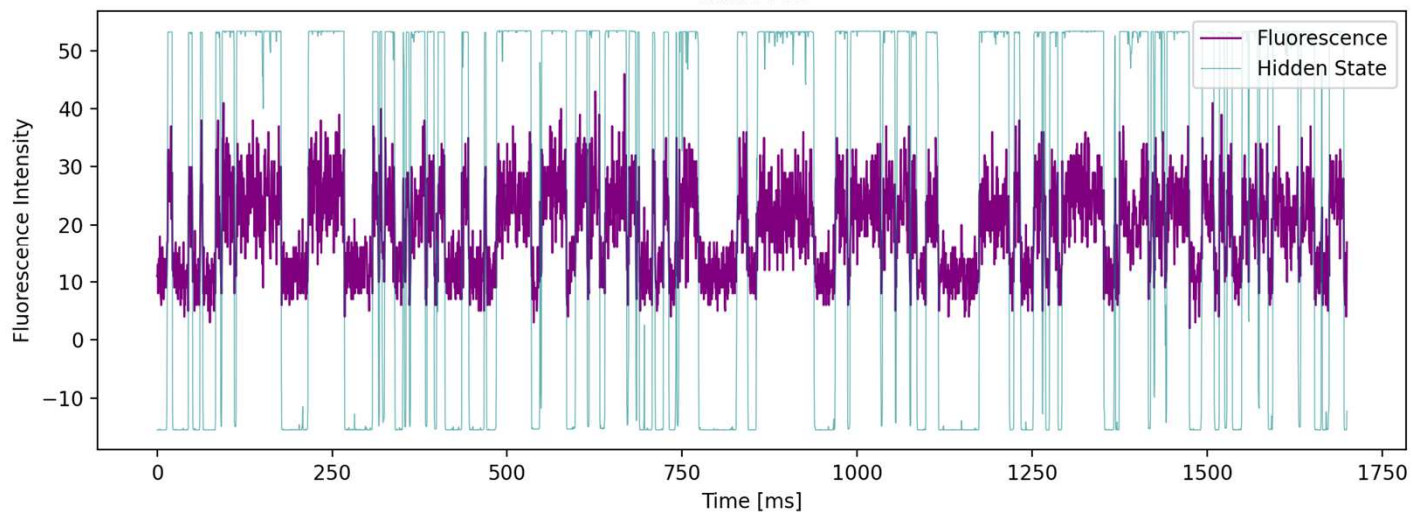
Analysis results for all 40 experimental datasets

This Supplemental Information provides the analysis results for all 40 experimental datasets, including the photon-count time-series analysis, the corresponding histograms, and the iteration-step dependence of the surrogate objective $\mathcal{L}$. Data were collected for a total of 40 single-molecule trajectories (**data0001**–**data0040**). On each page, the upper panel shows the photon-count time series, where the solid purple line represents the number of photons detected within each 0.5 ms time bin, and the thin green line indicates the hidden-state sequence inferred from the hidden Markov model simulation. The middle panel displays the histogram of photon counts, while the lower panel presents the surrogate objective $\mathcal{L}$ as a function of the iteration step, decomposed into the emission and transition contributions. Among the 40 datasets, **data0040** was excluded from the calculation of the blinking plot because the inferred hidden-state sequence exhibited substantial noise. Notably, the photon-count histogram of **data0040** shows a unimodal pattern, and its total surrogate objective $\mathcal{L}$ is appreciably lower than those of the other datasets.

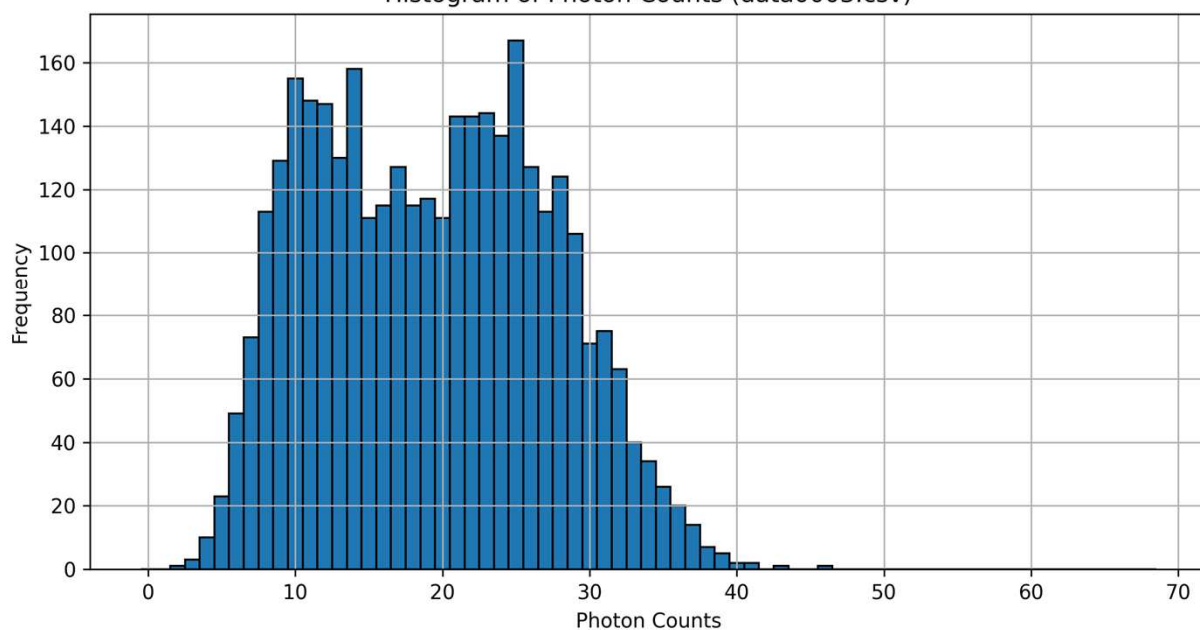




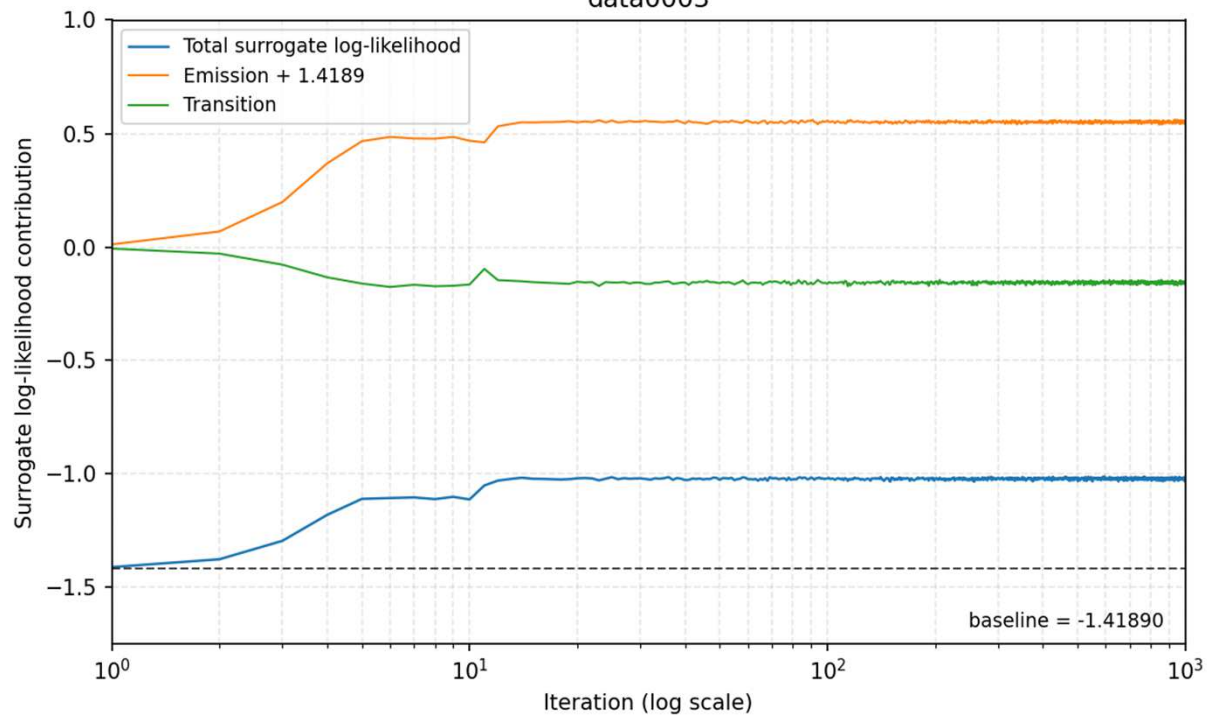
data0003

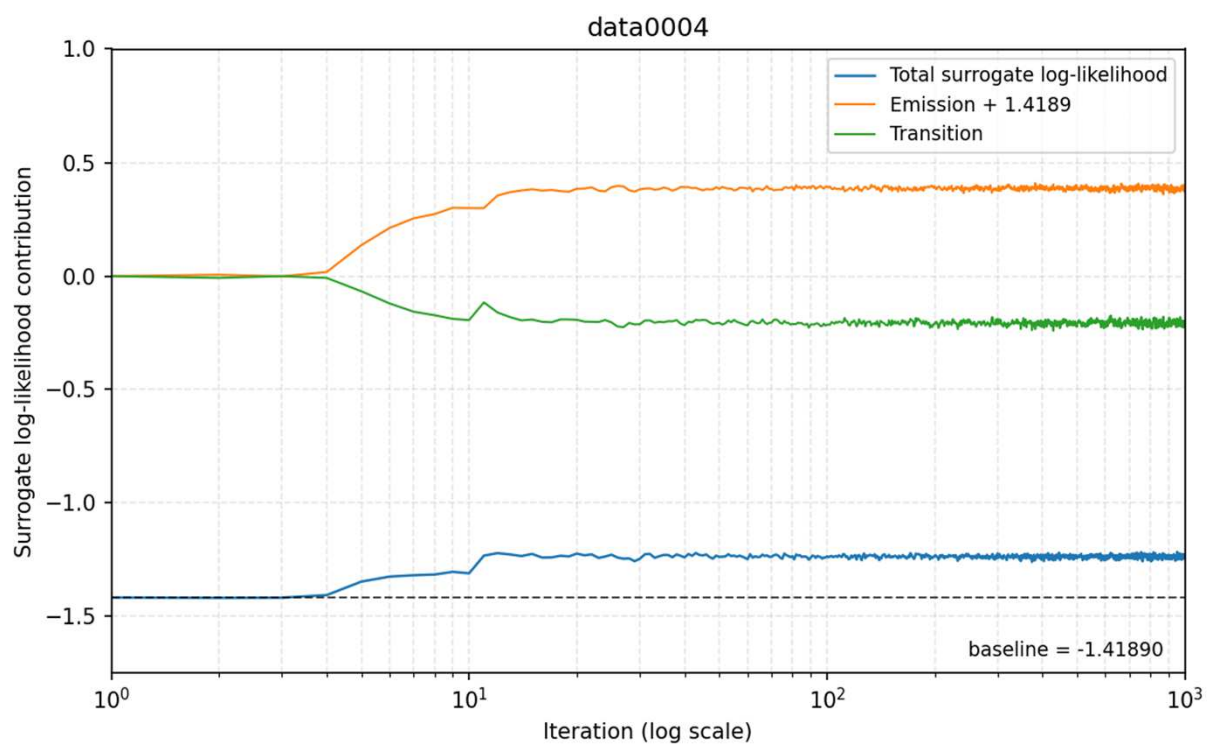
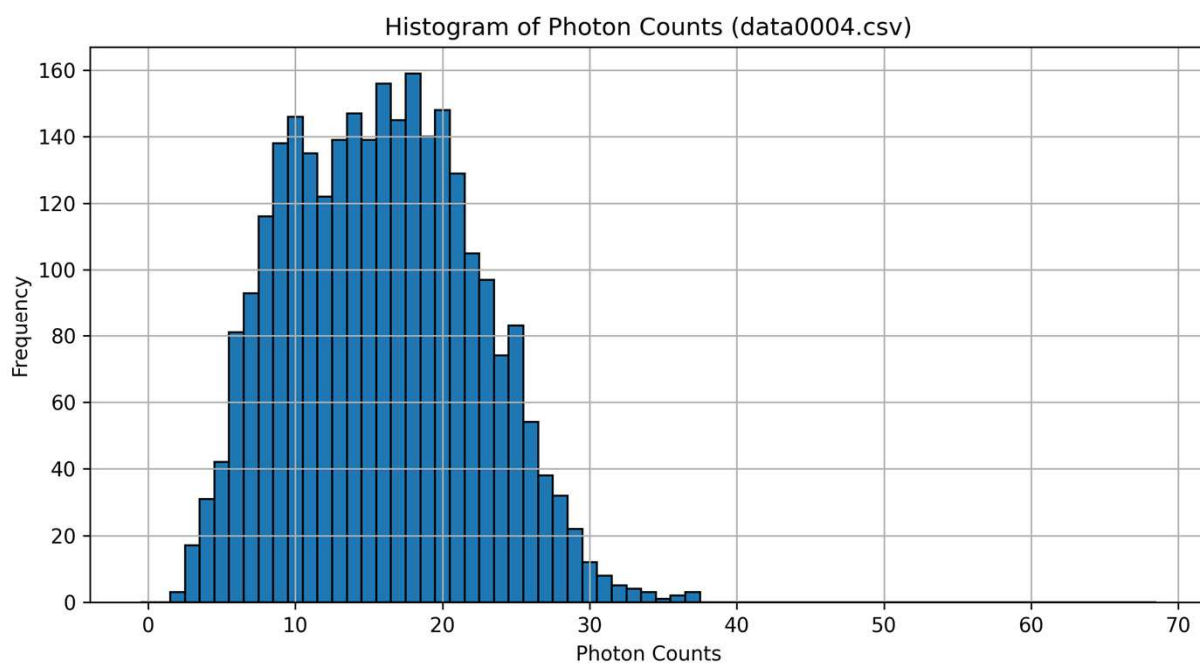
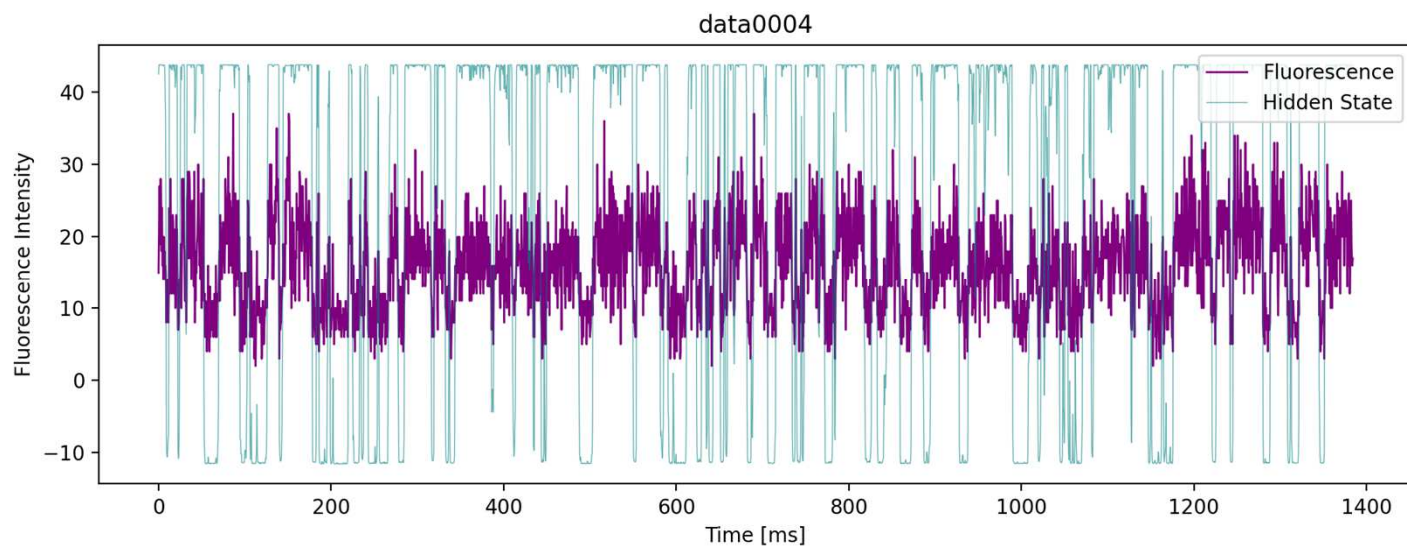


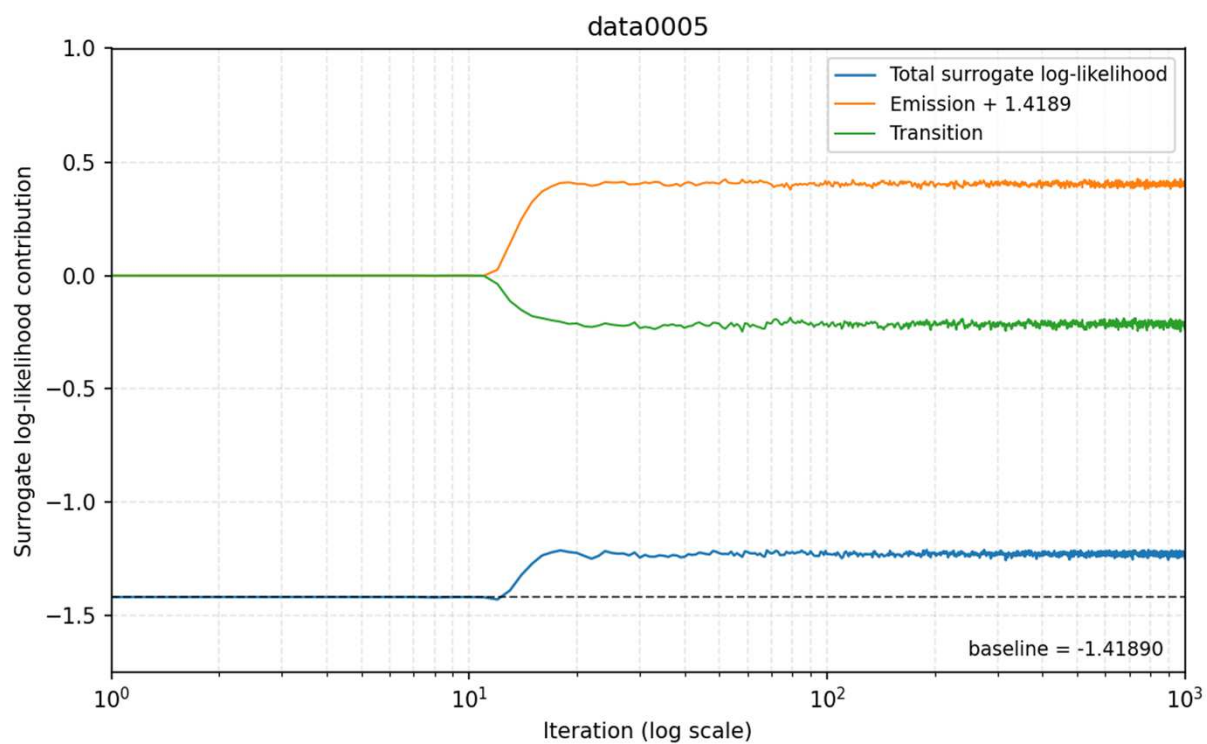
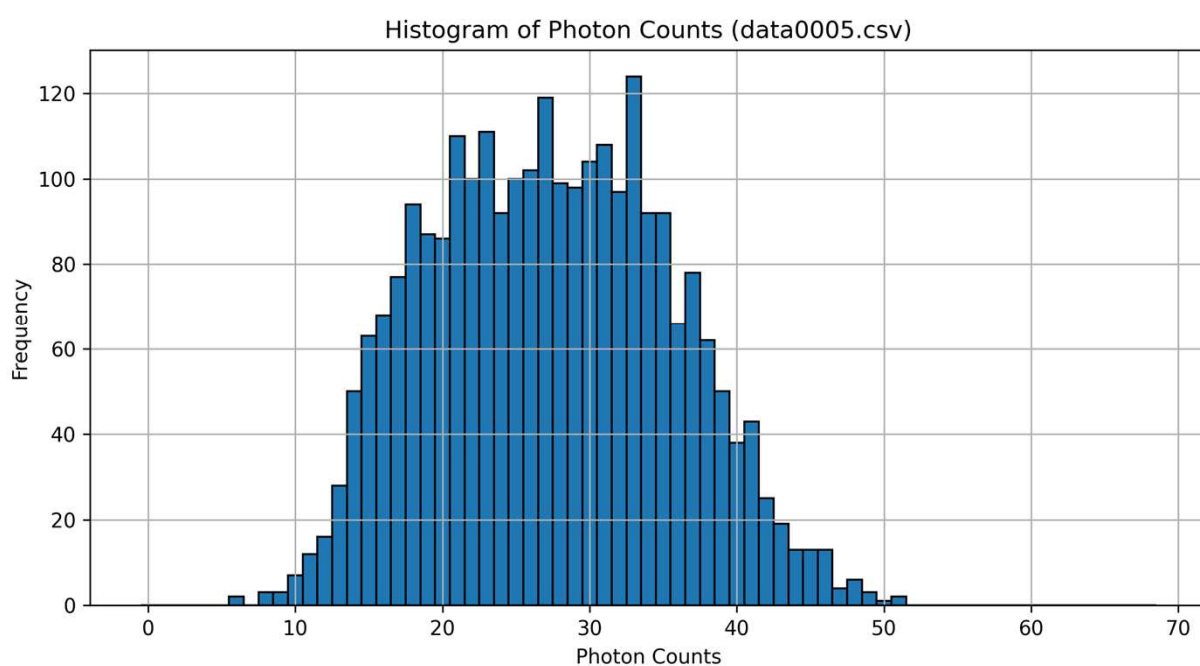
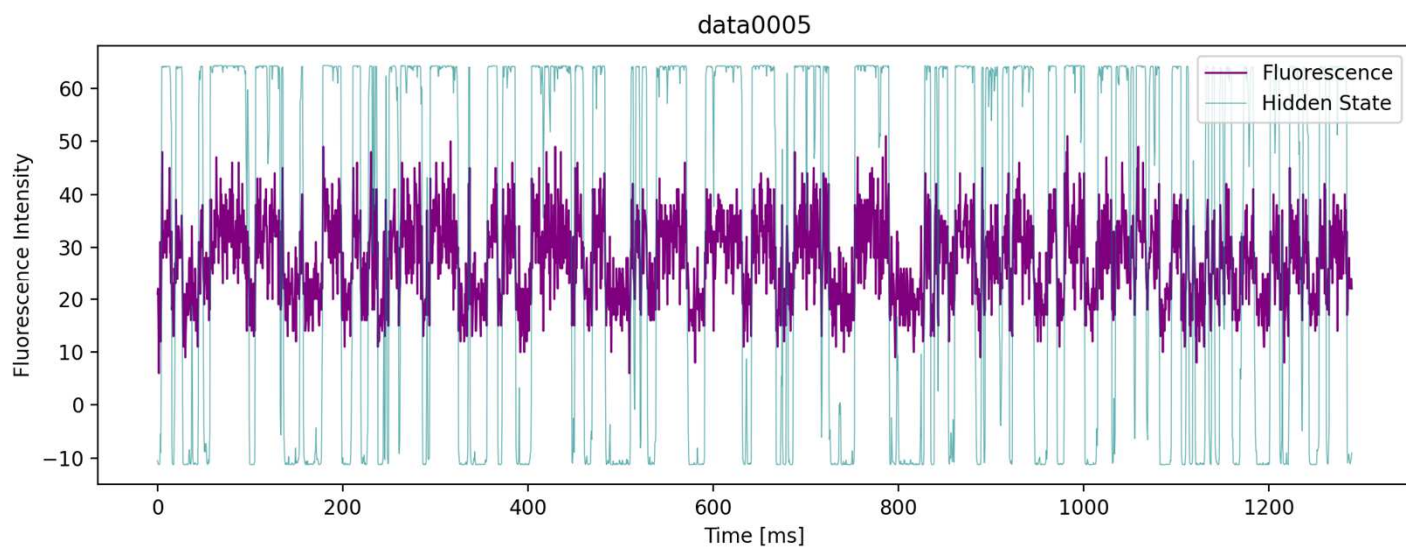
Histogram of Photon Counts (data0003.csv)

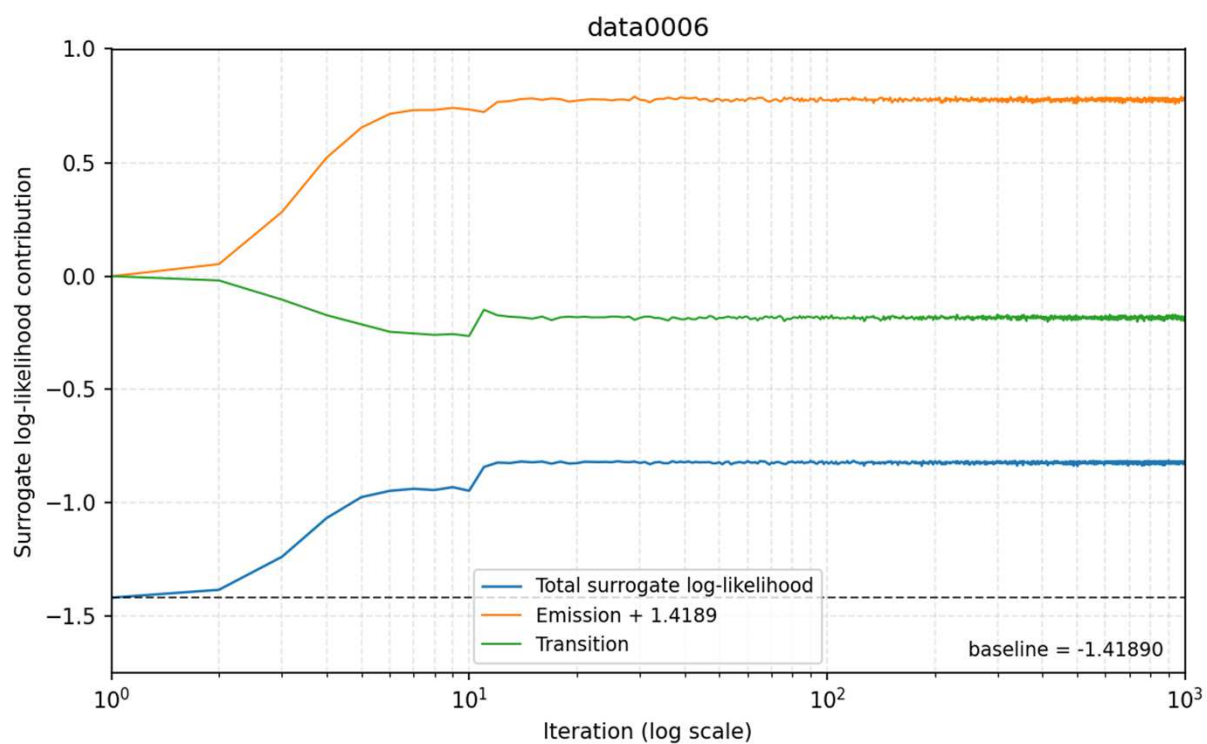
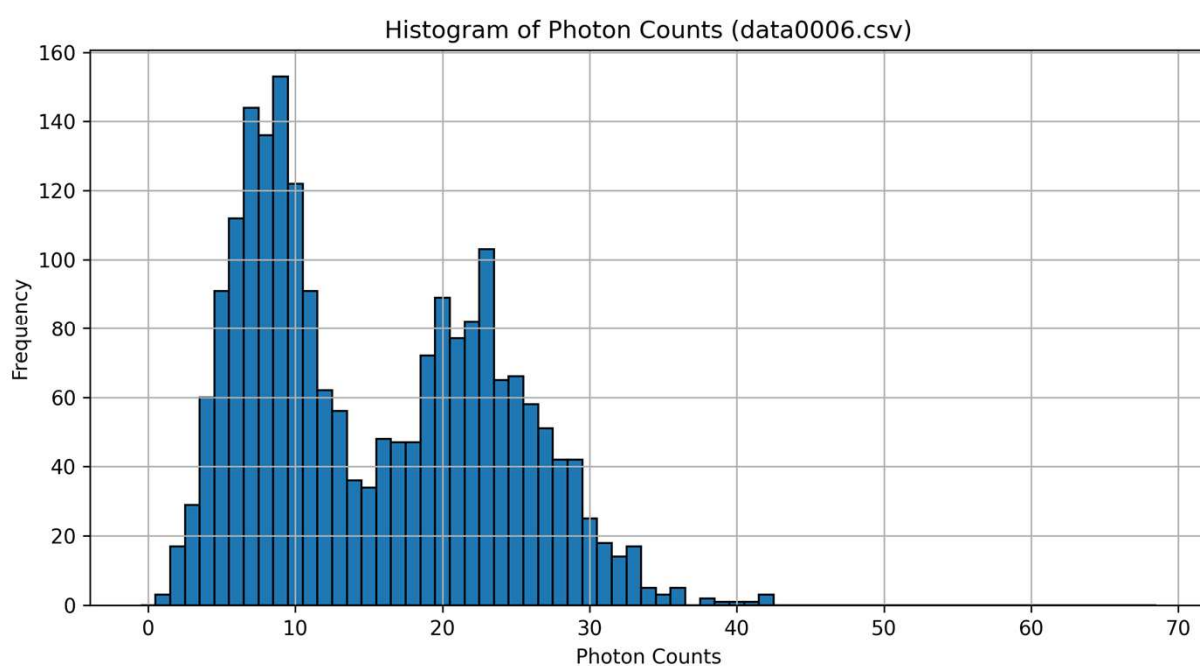
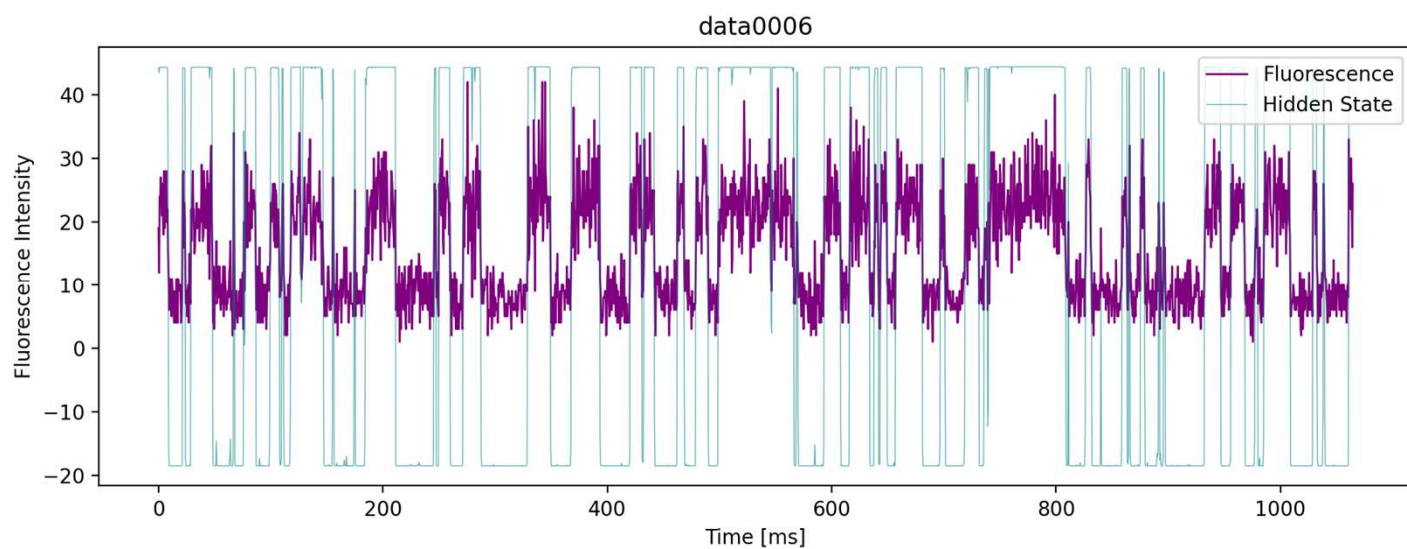


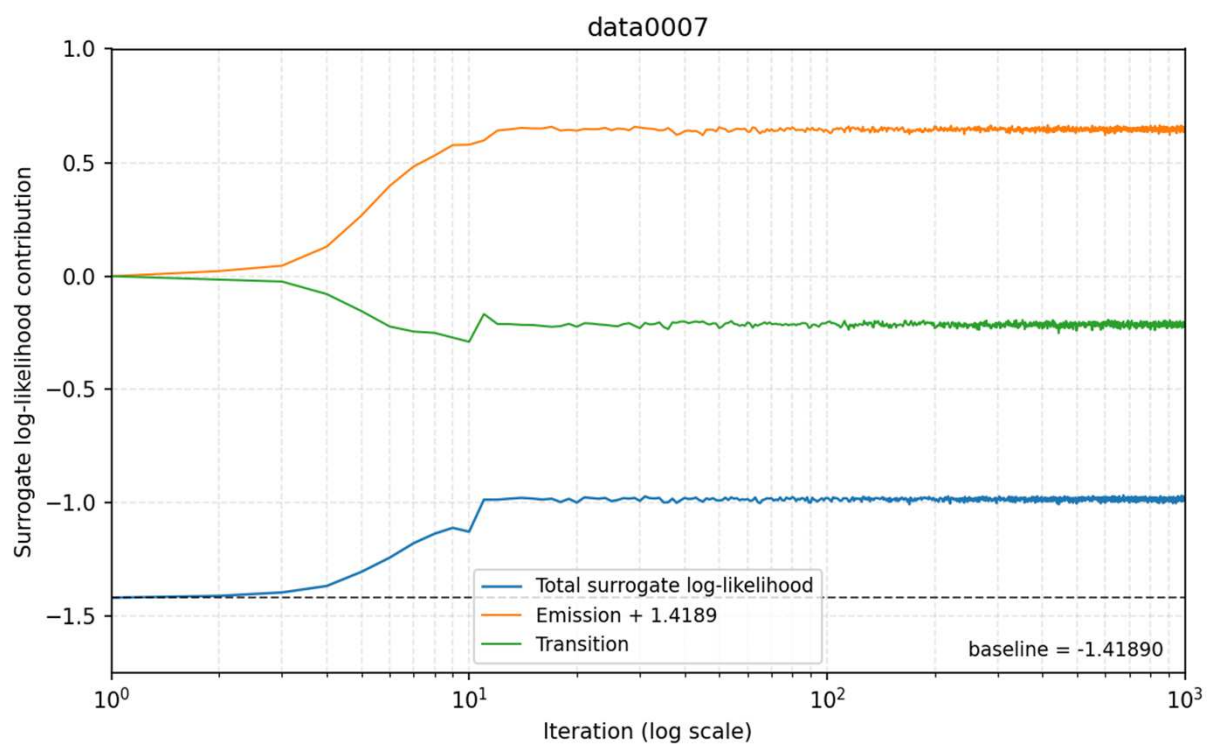
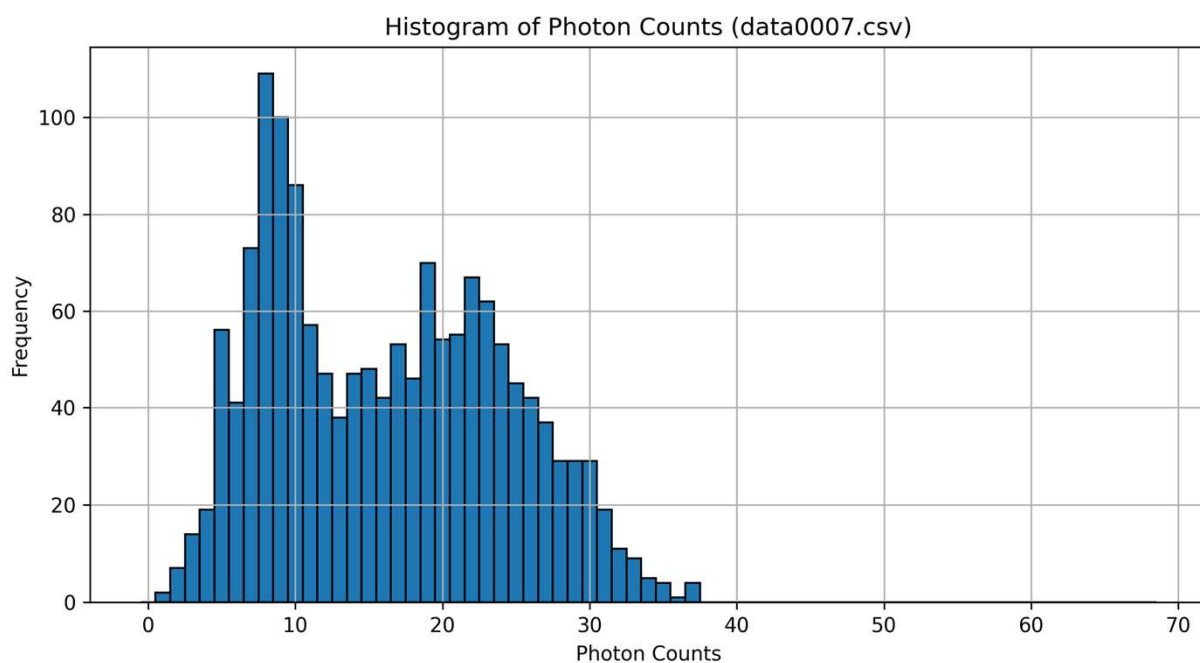
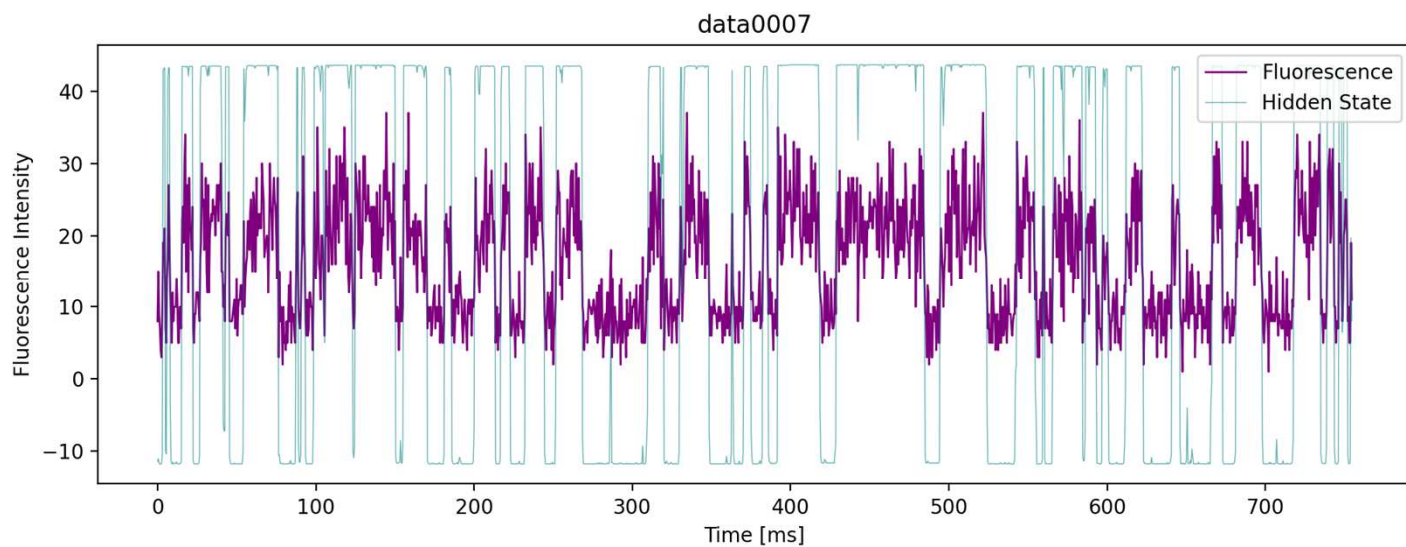
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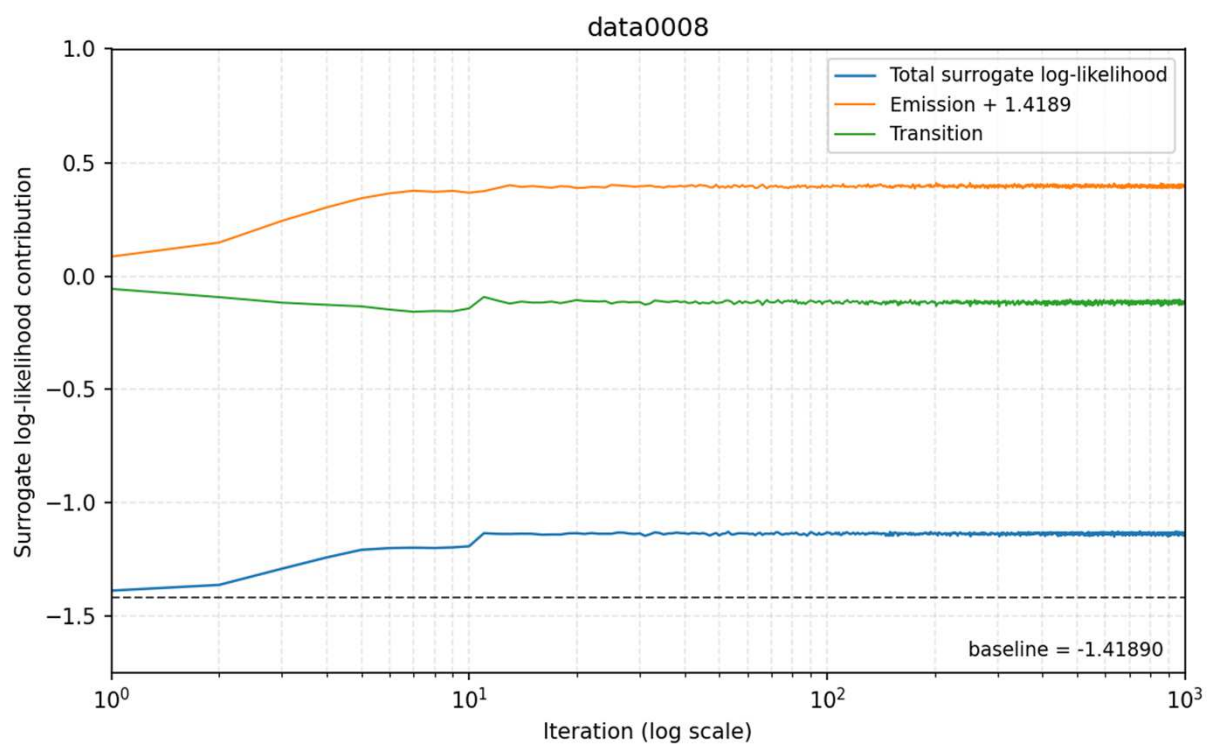
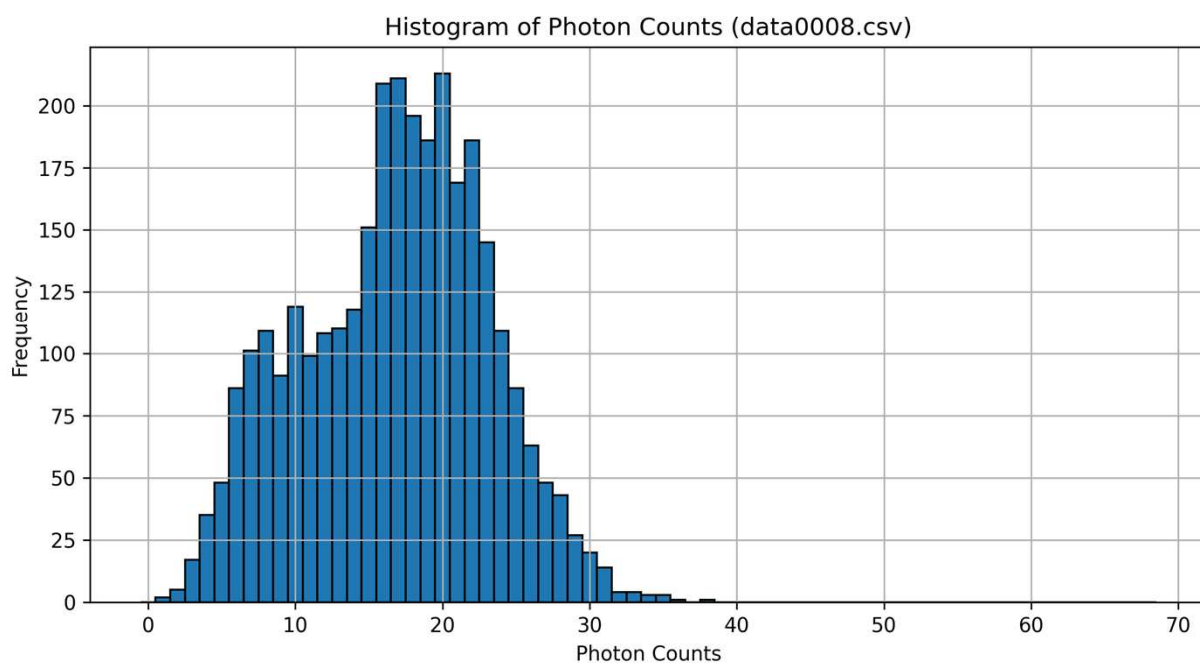
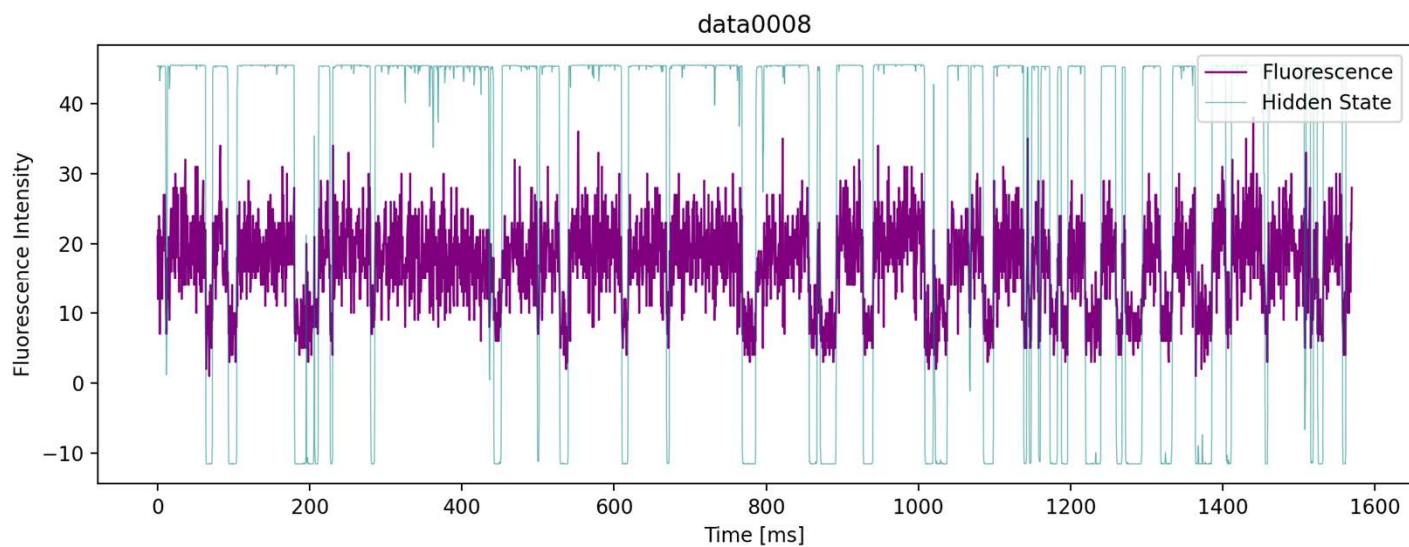


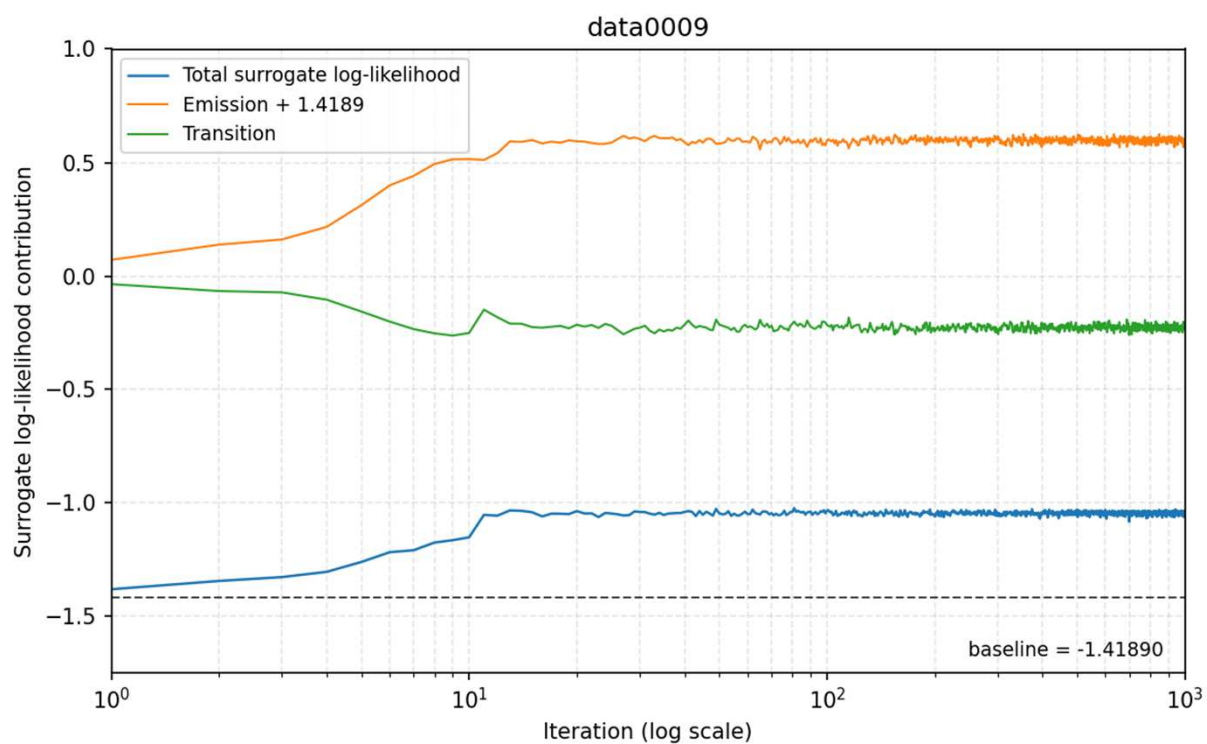
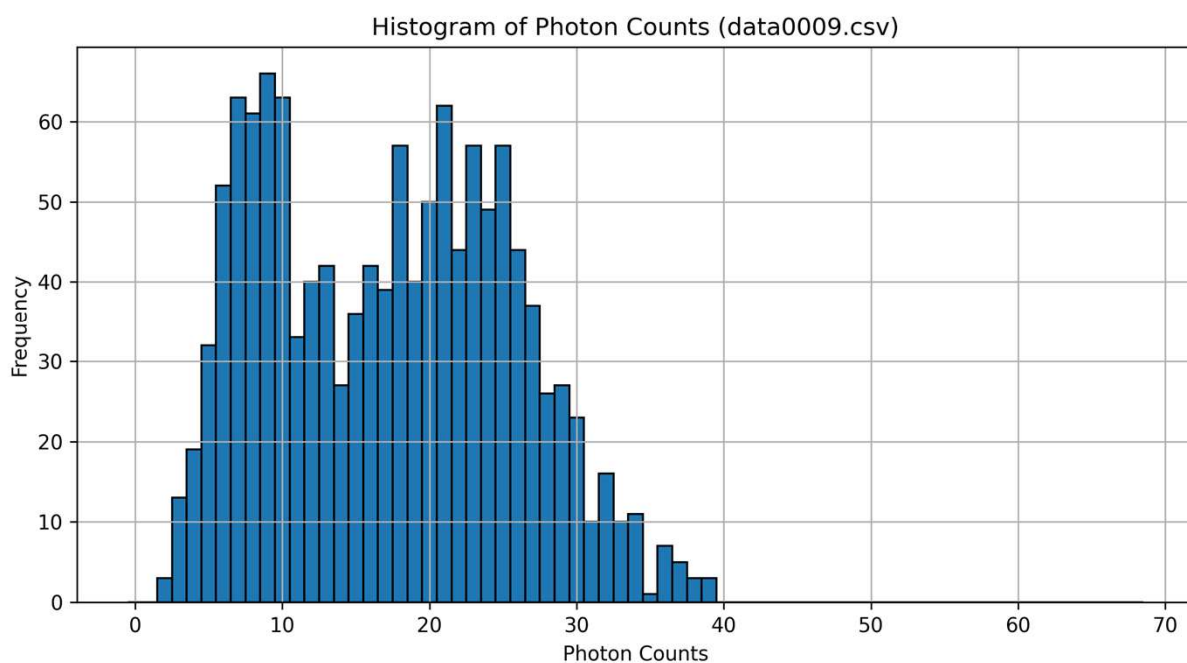
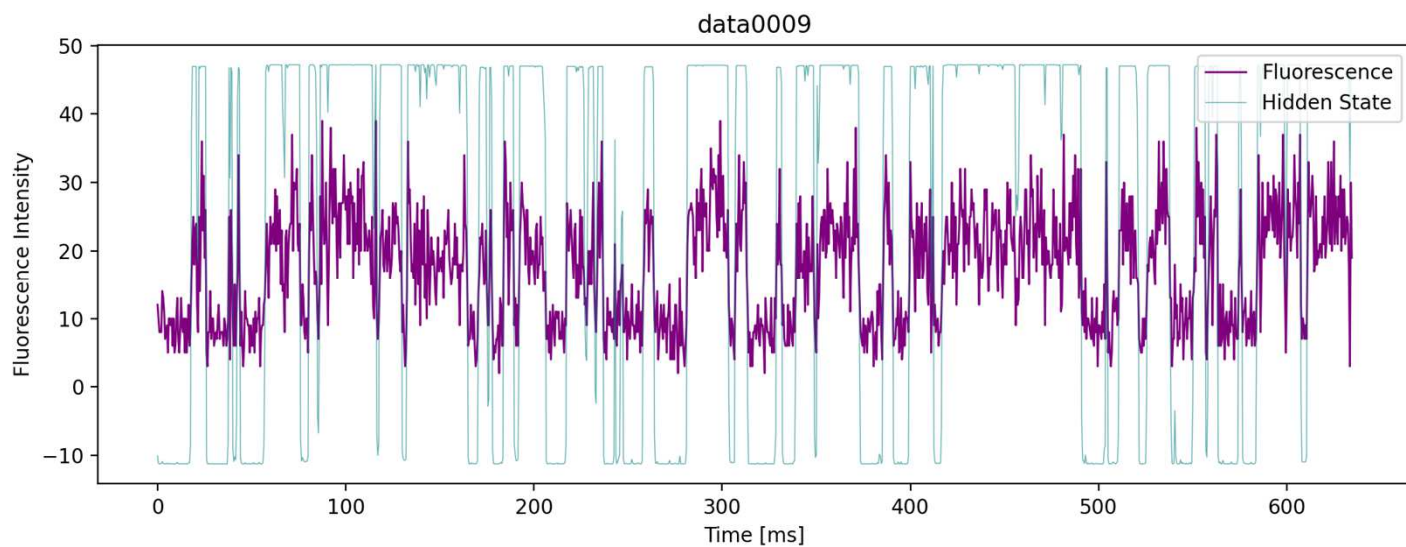


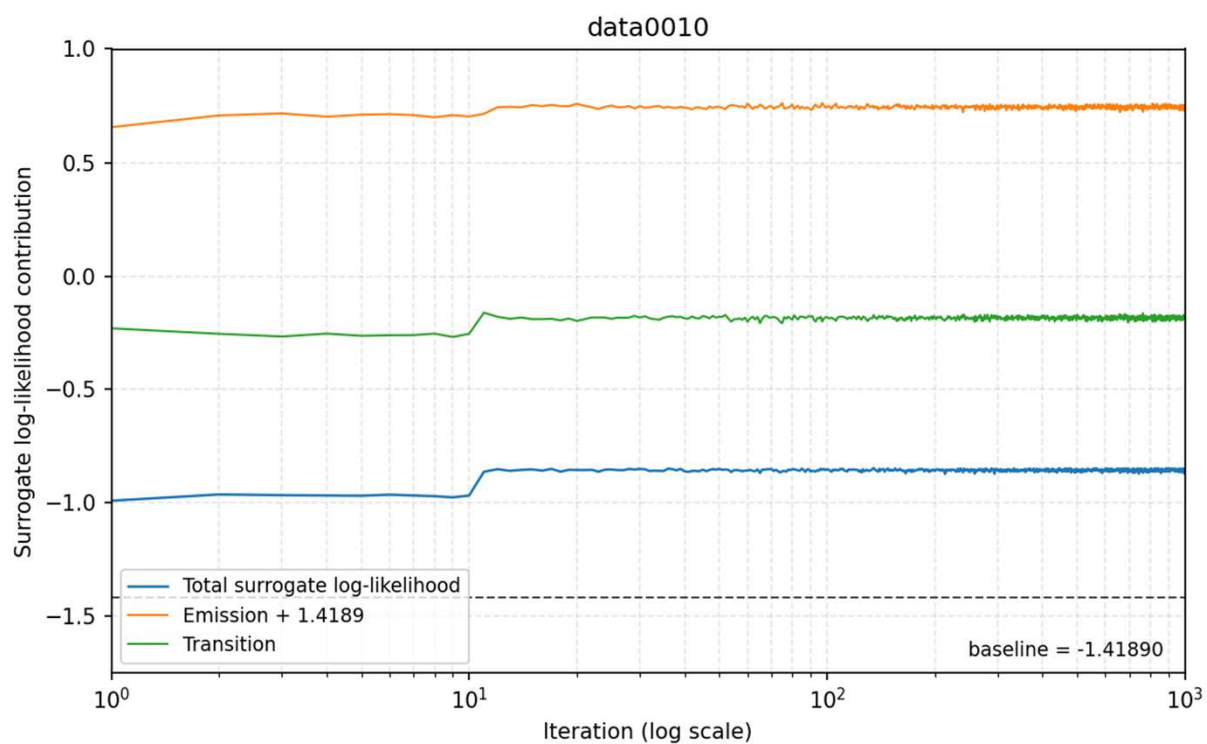
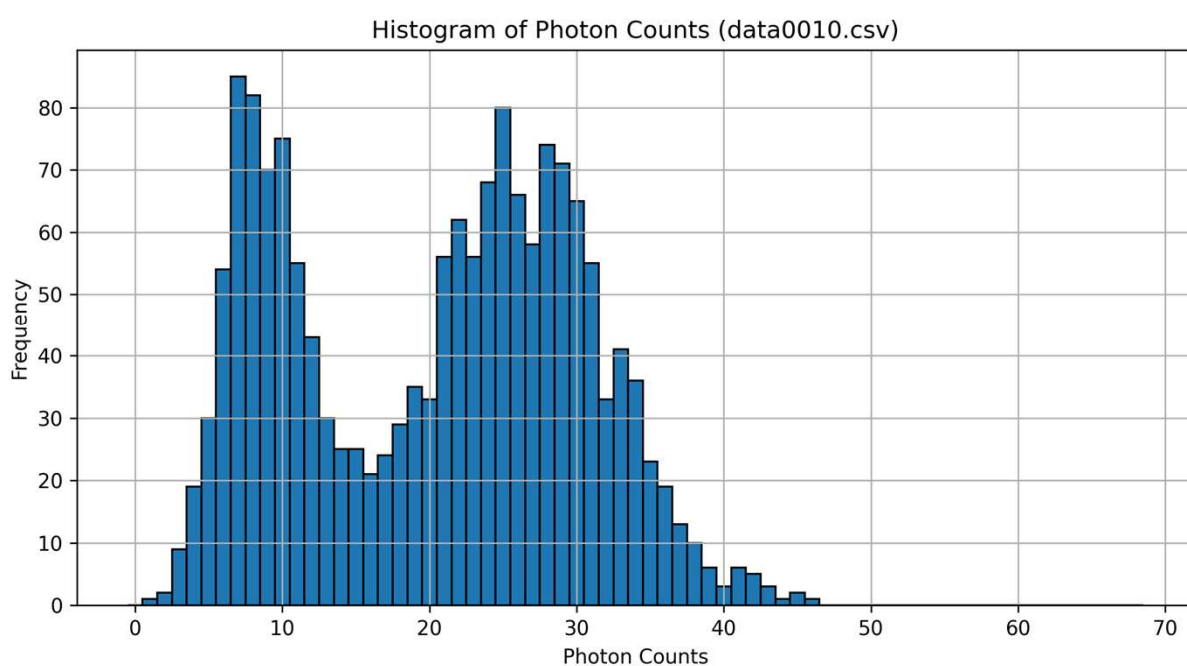
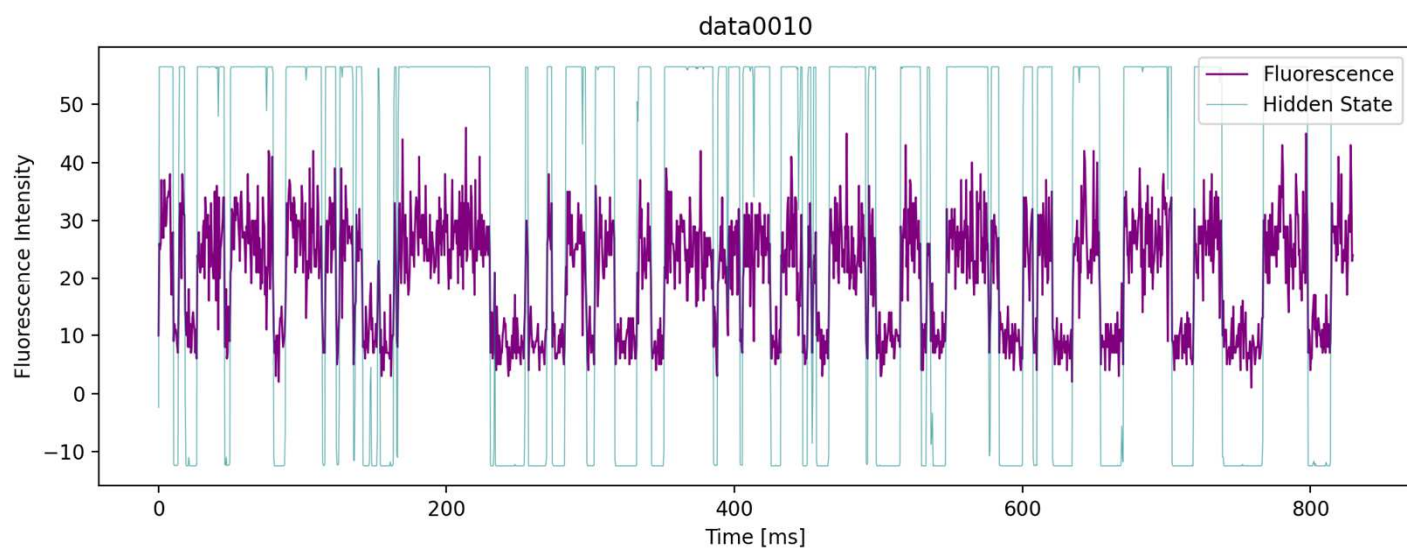




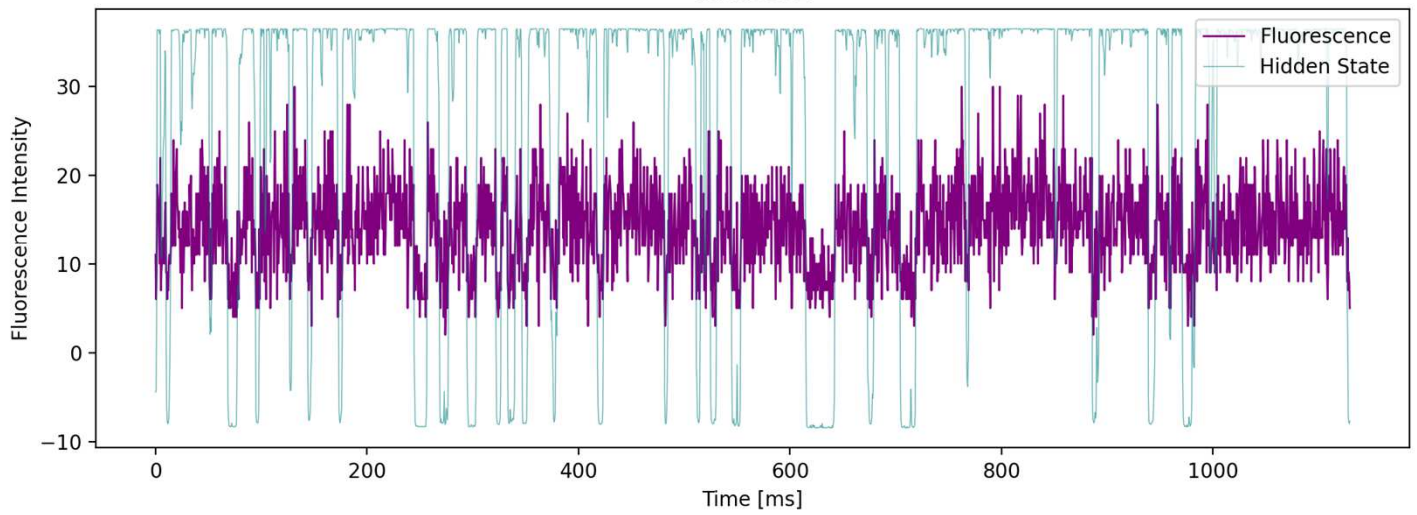




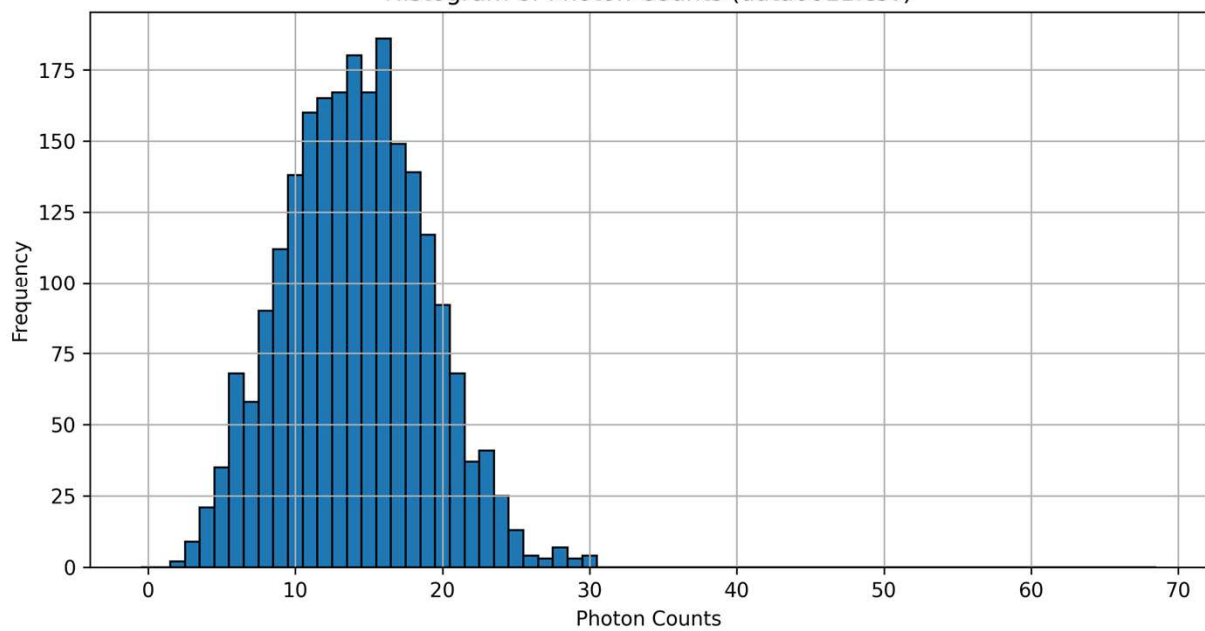




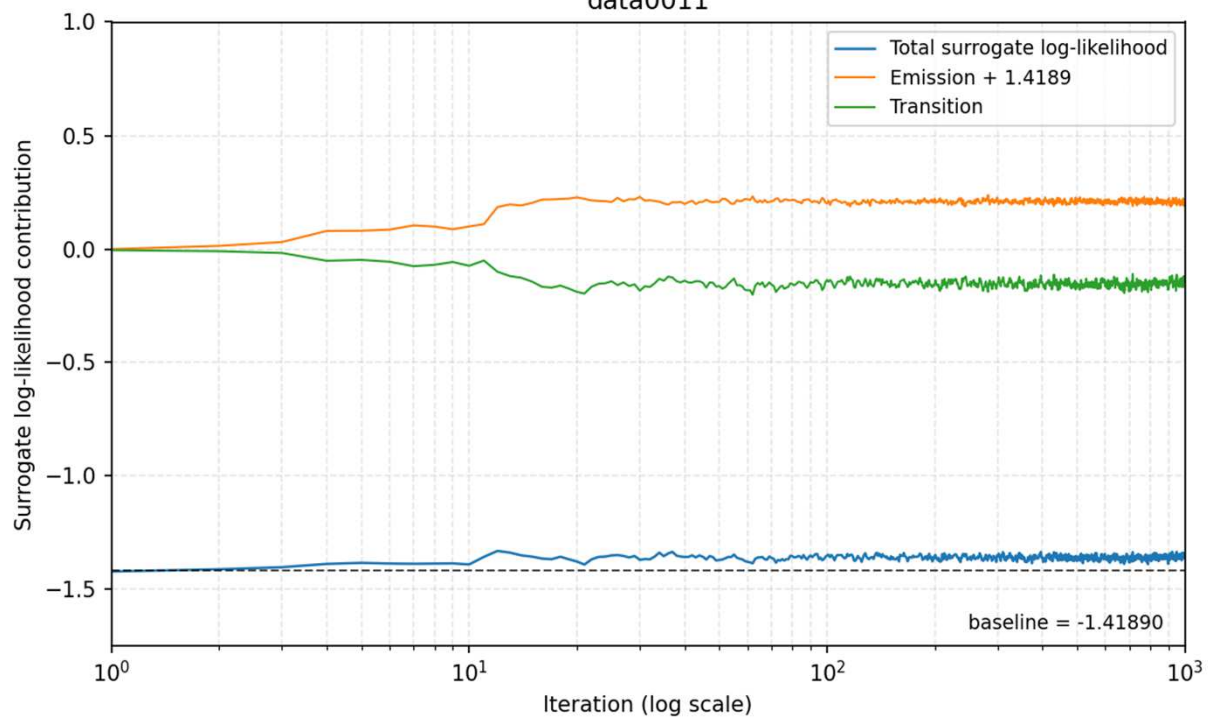
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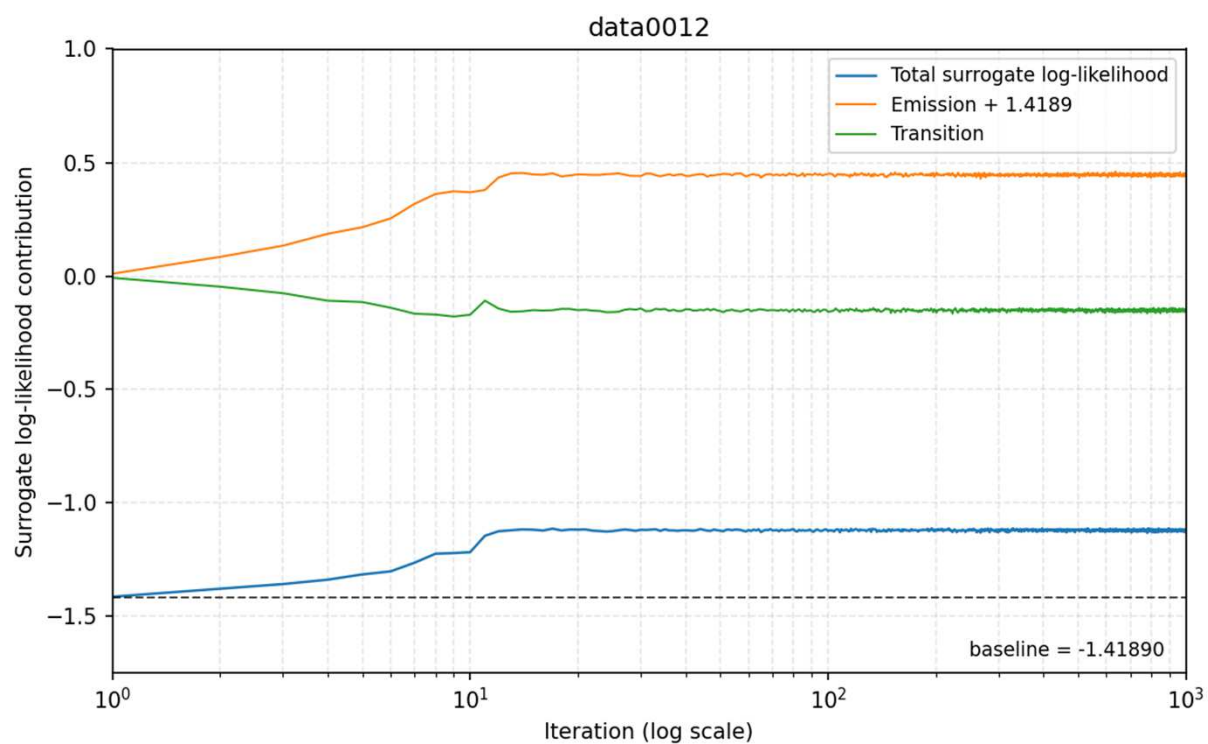
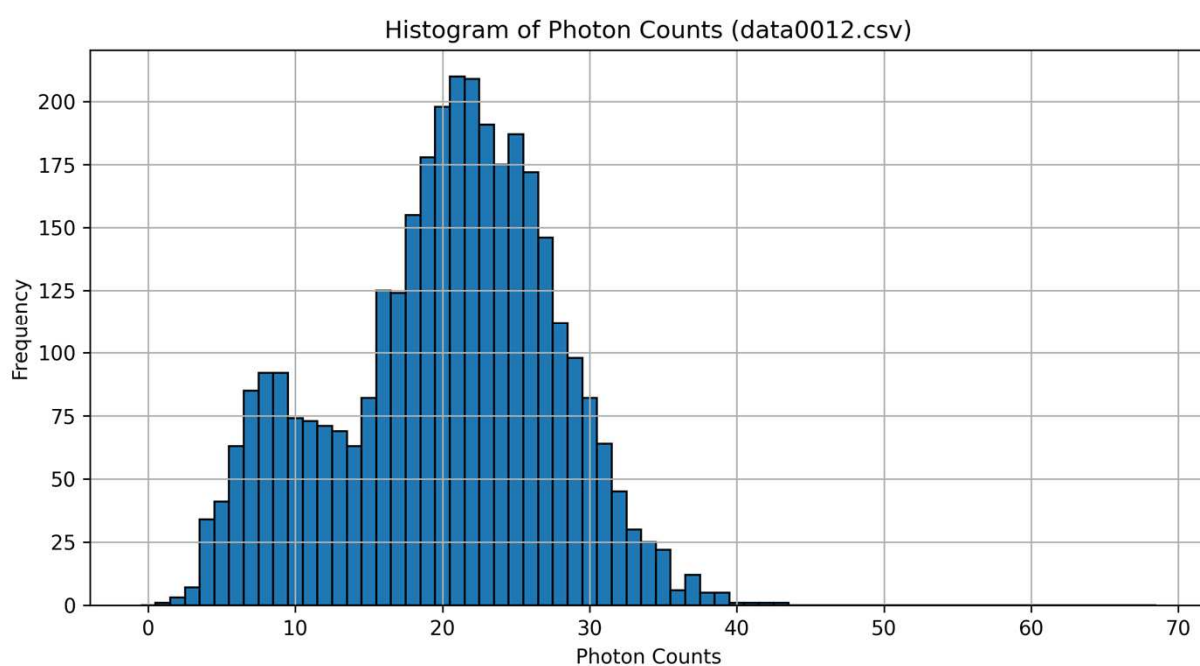
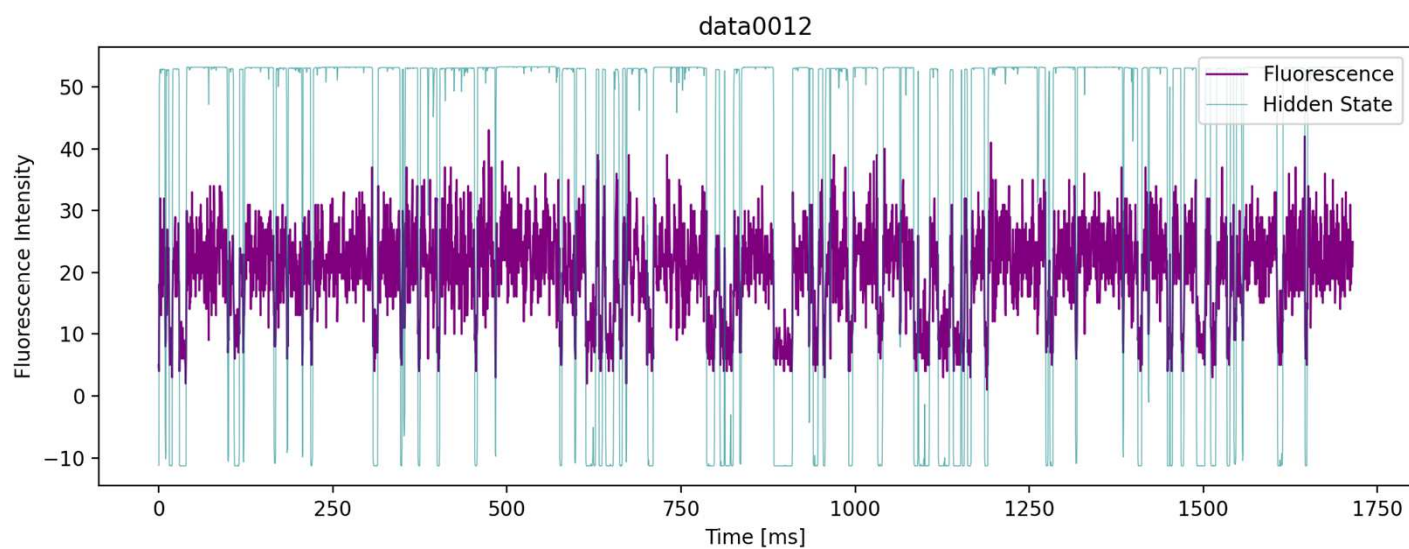


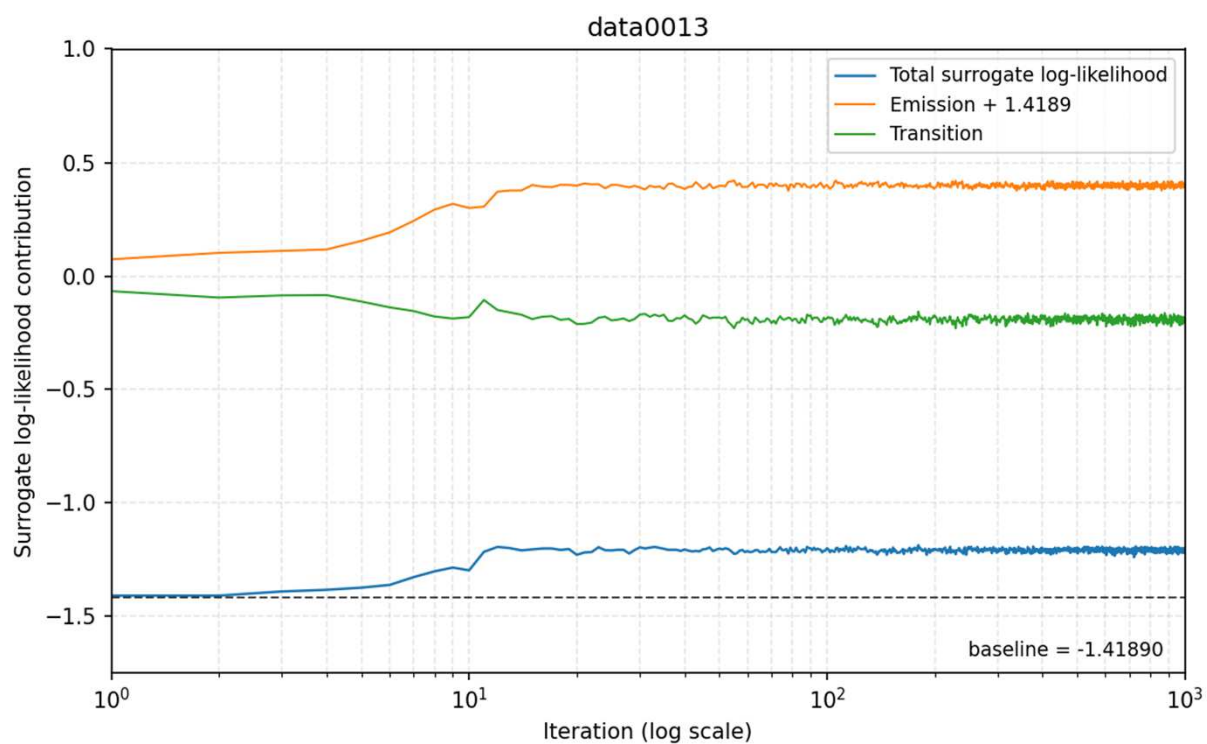
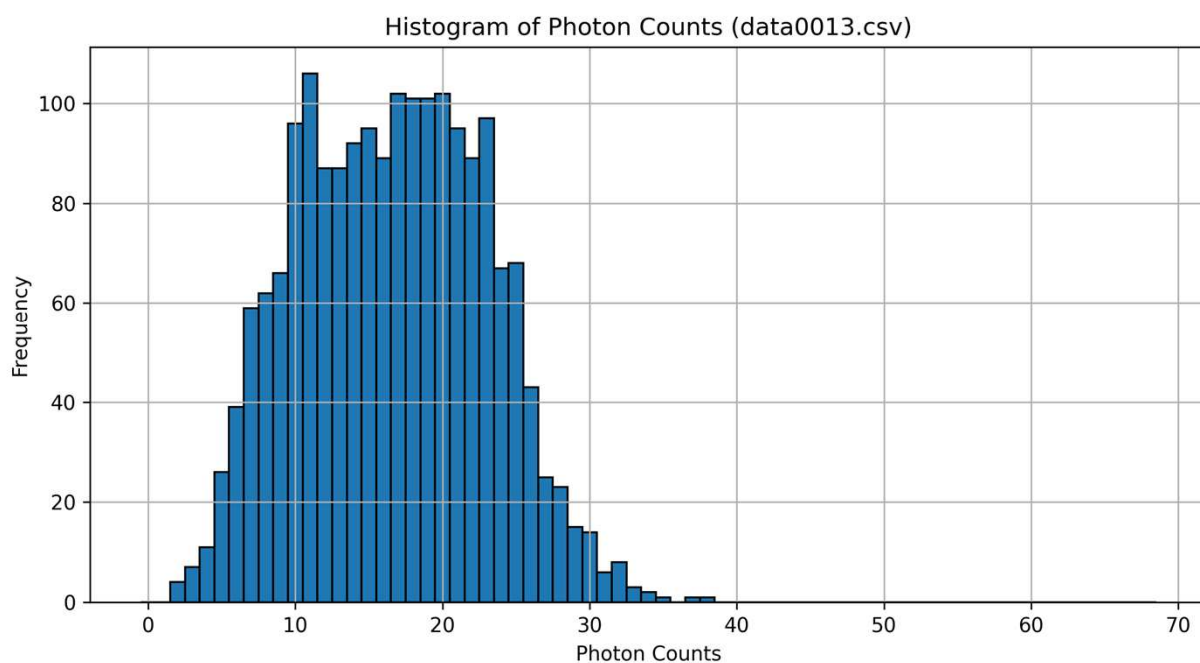
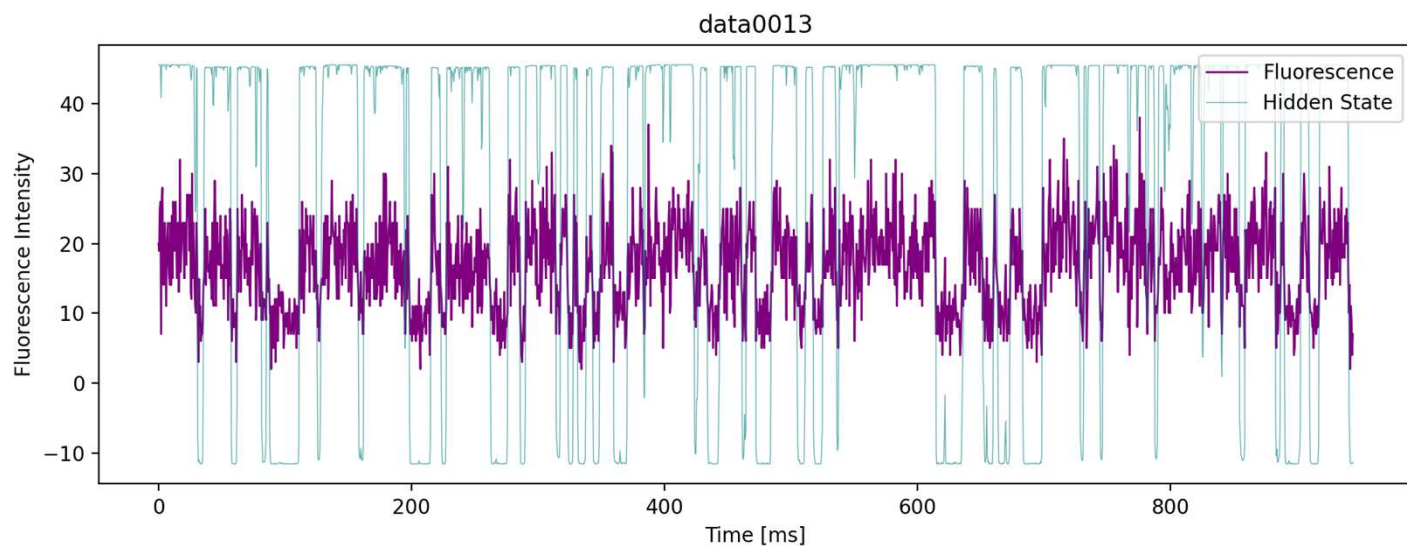
Histogram of Photon Counts (data0011.csv)



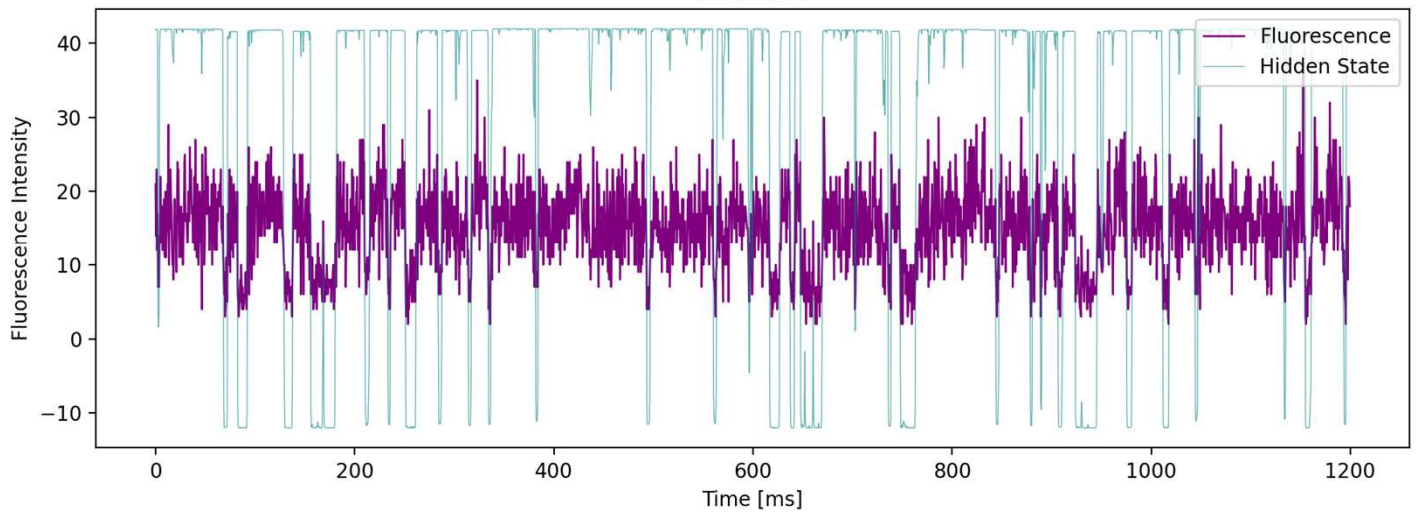
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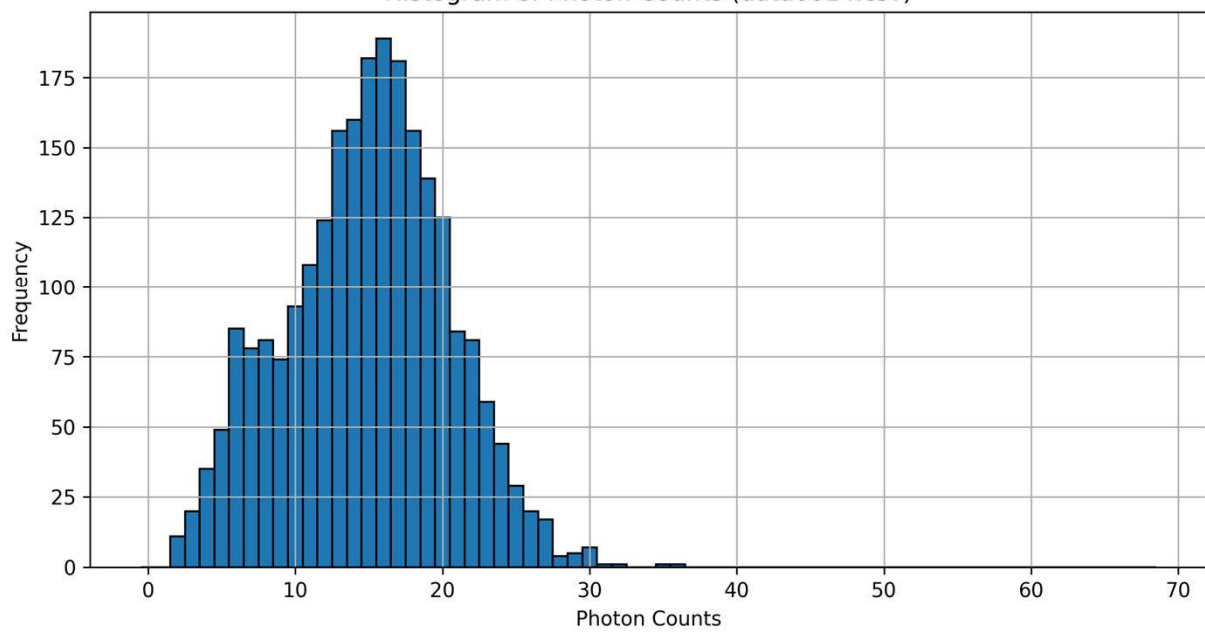




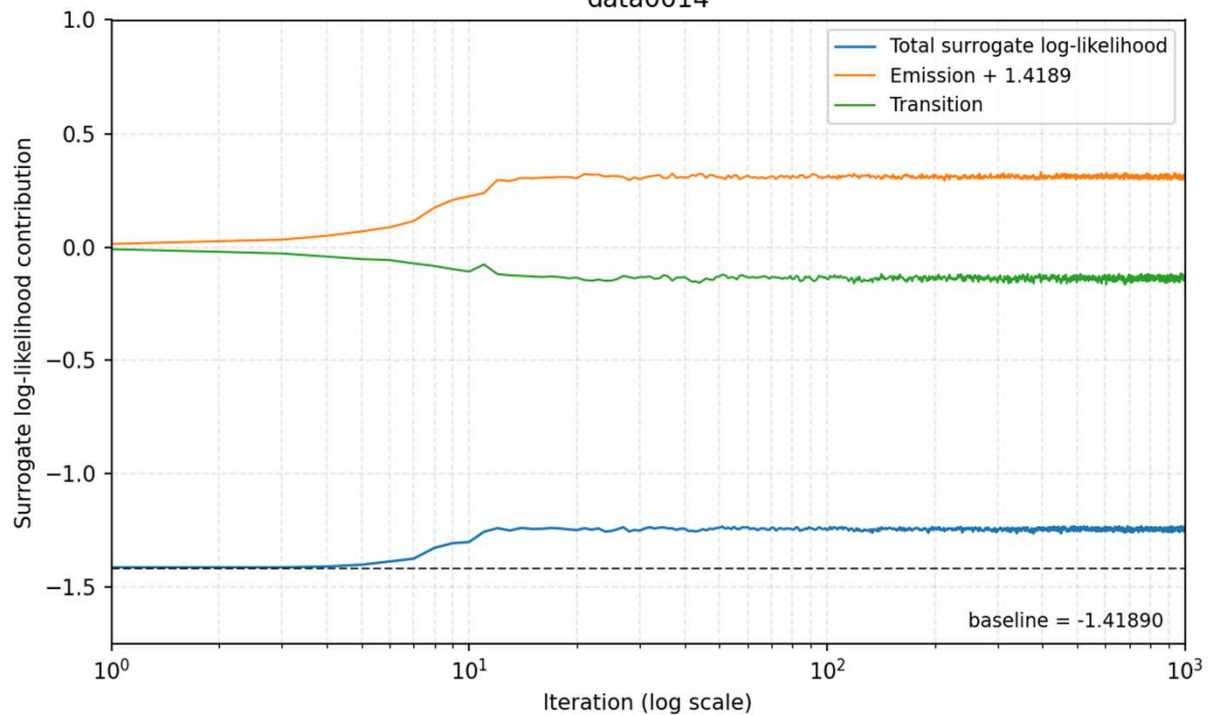
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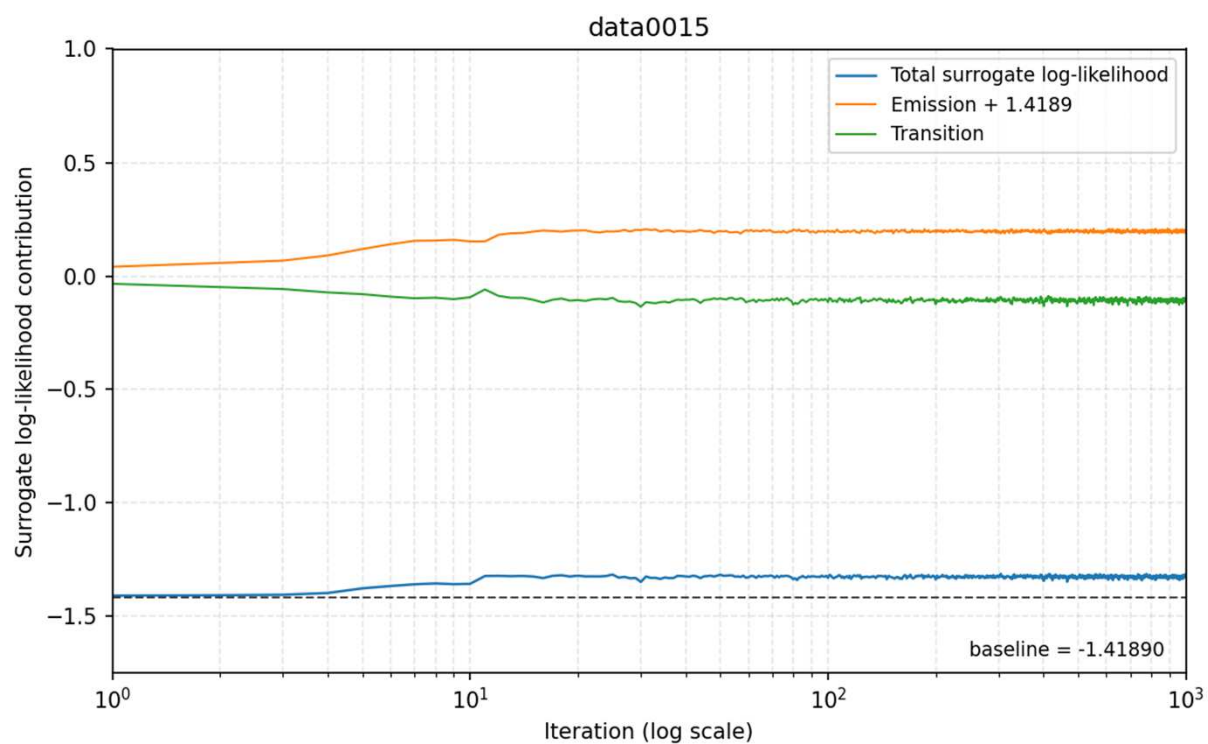
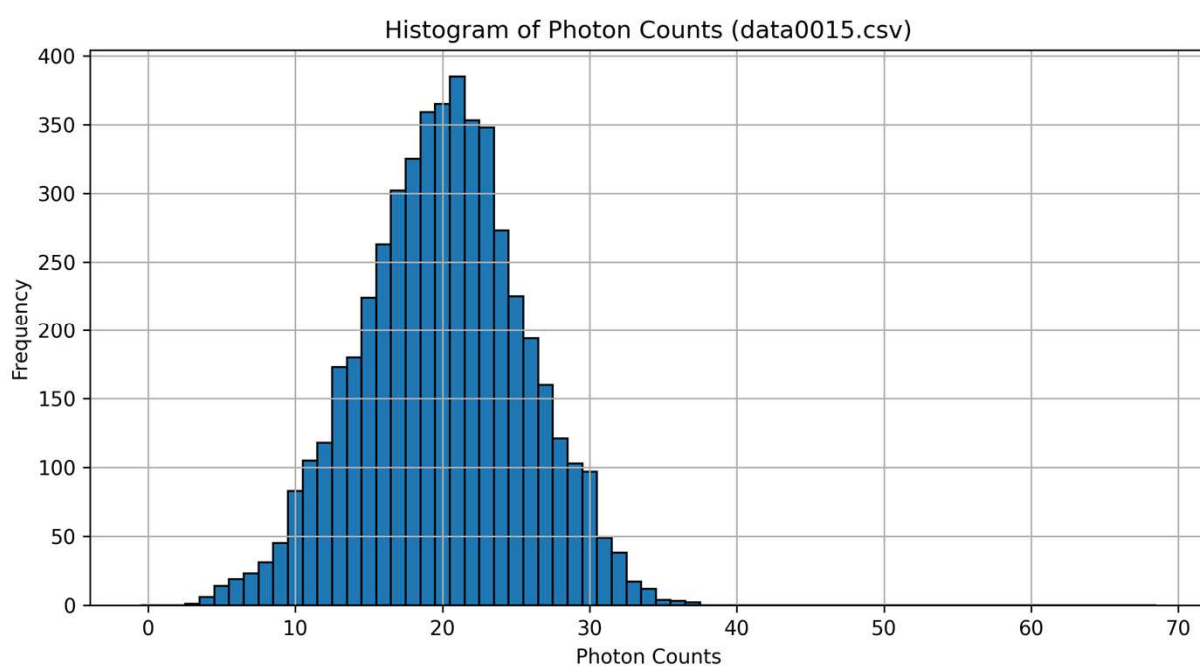
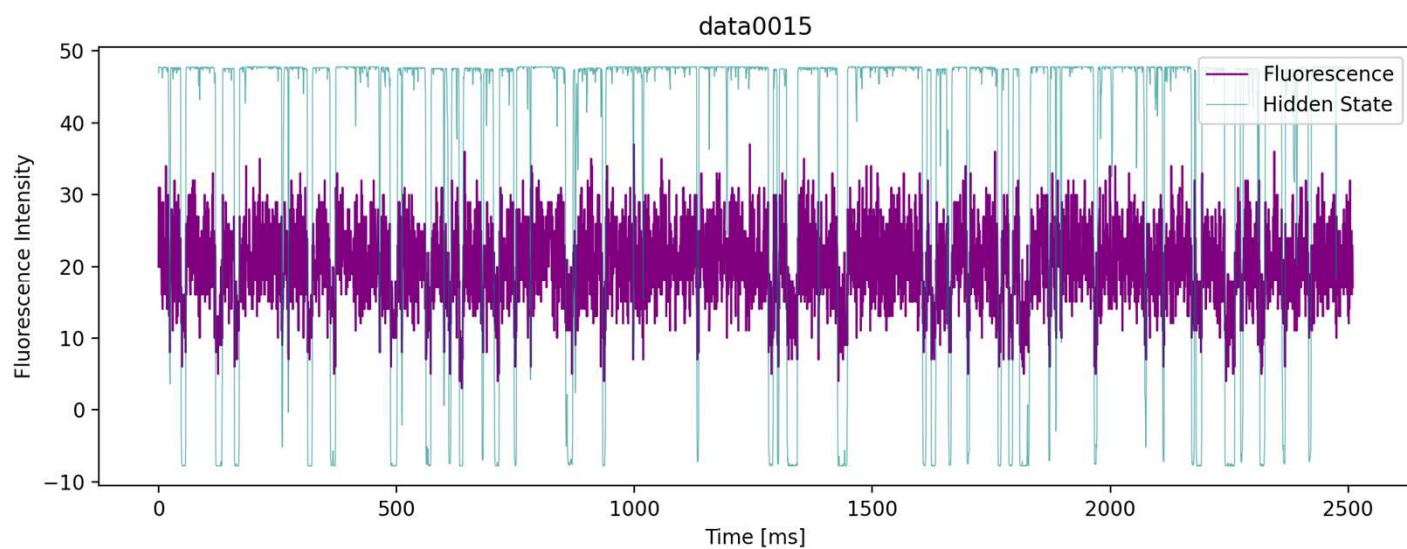


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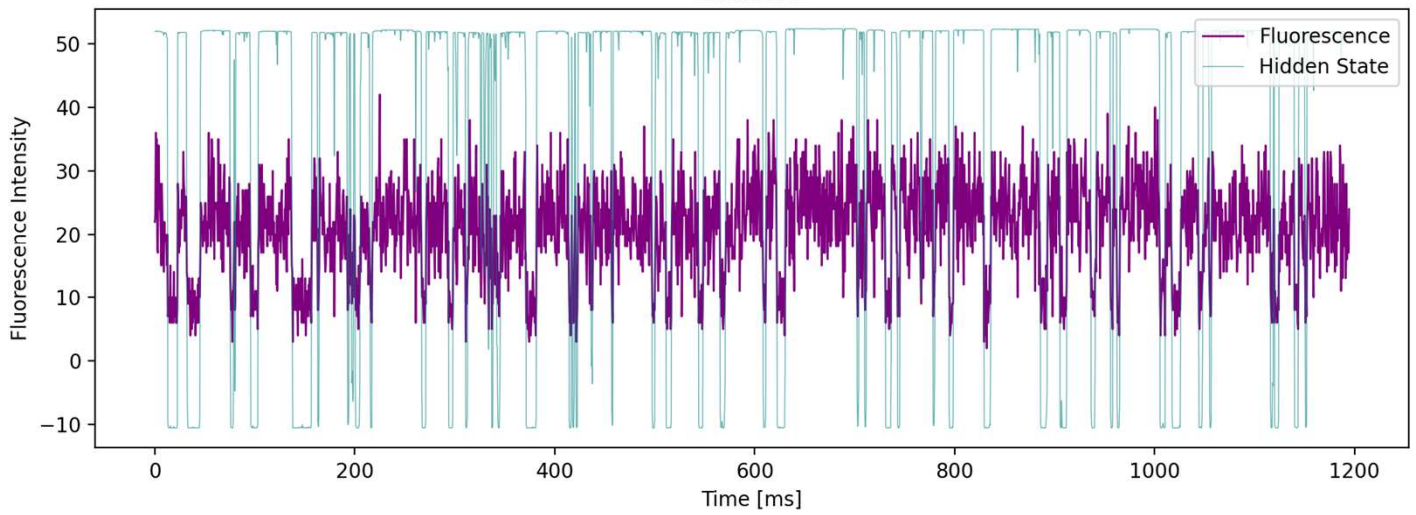


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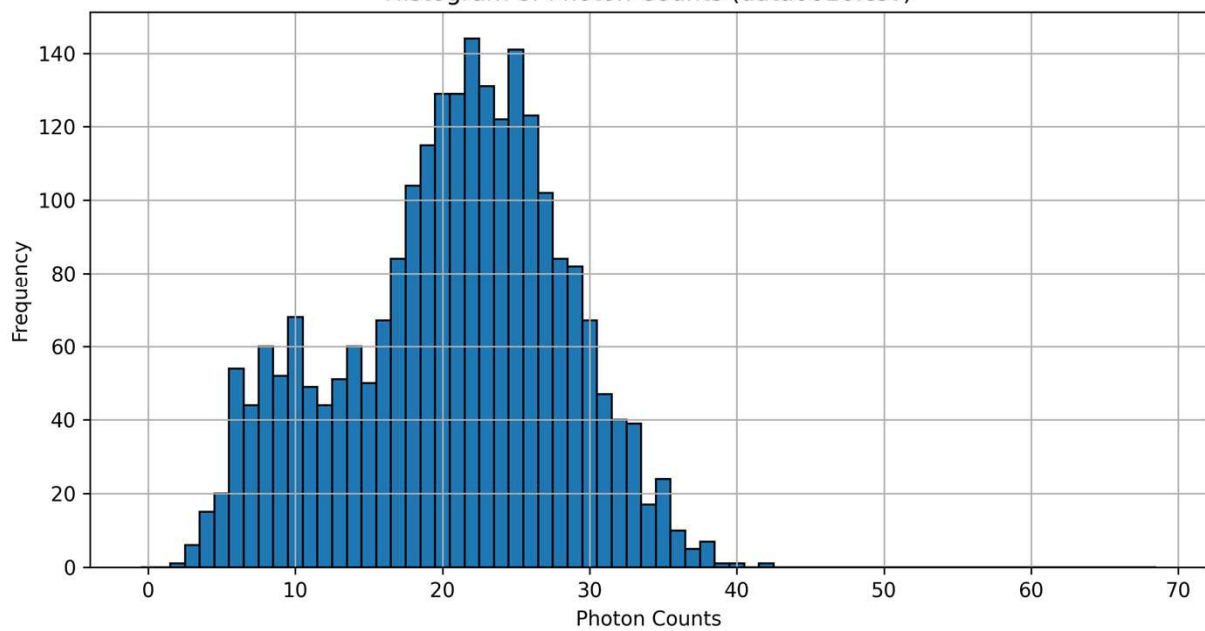




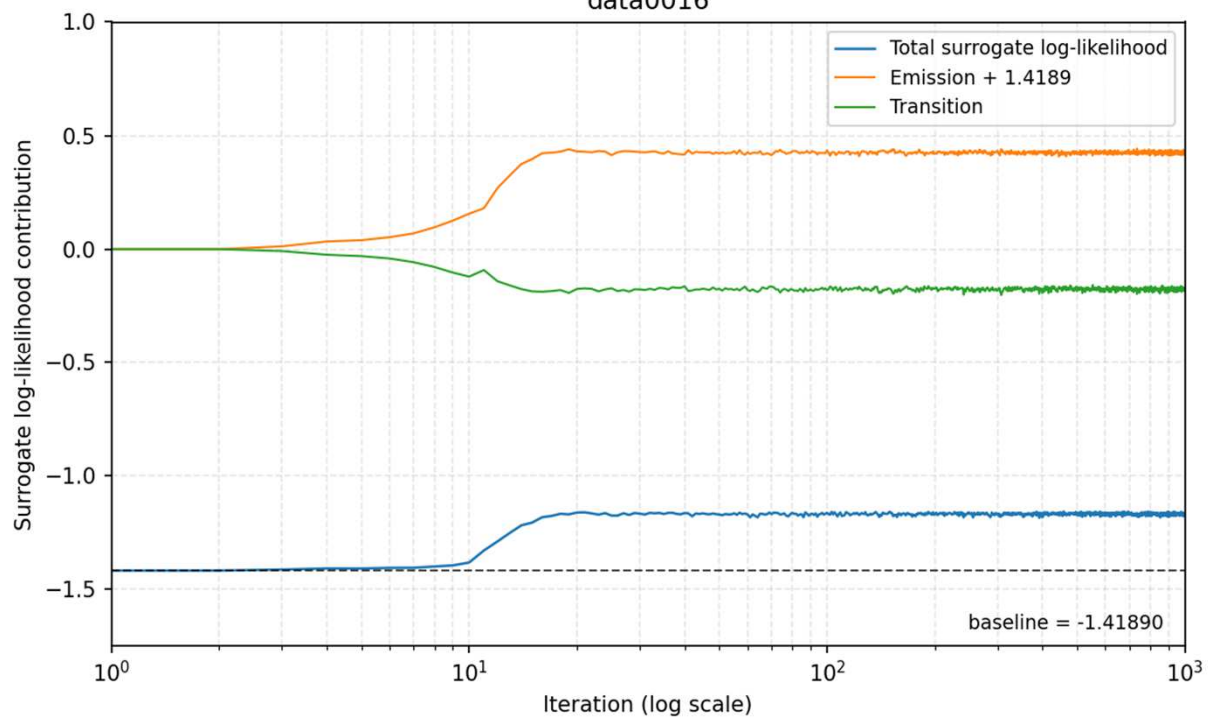
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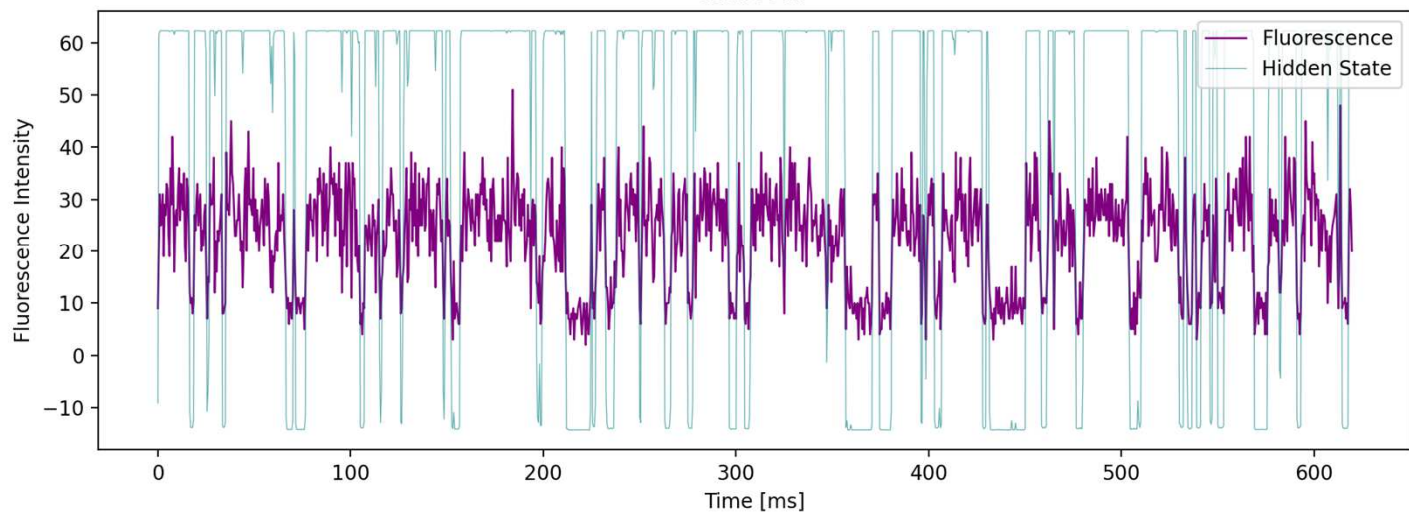
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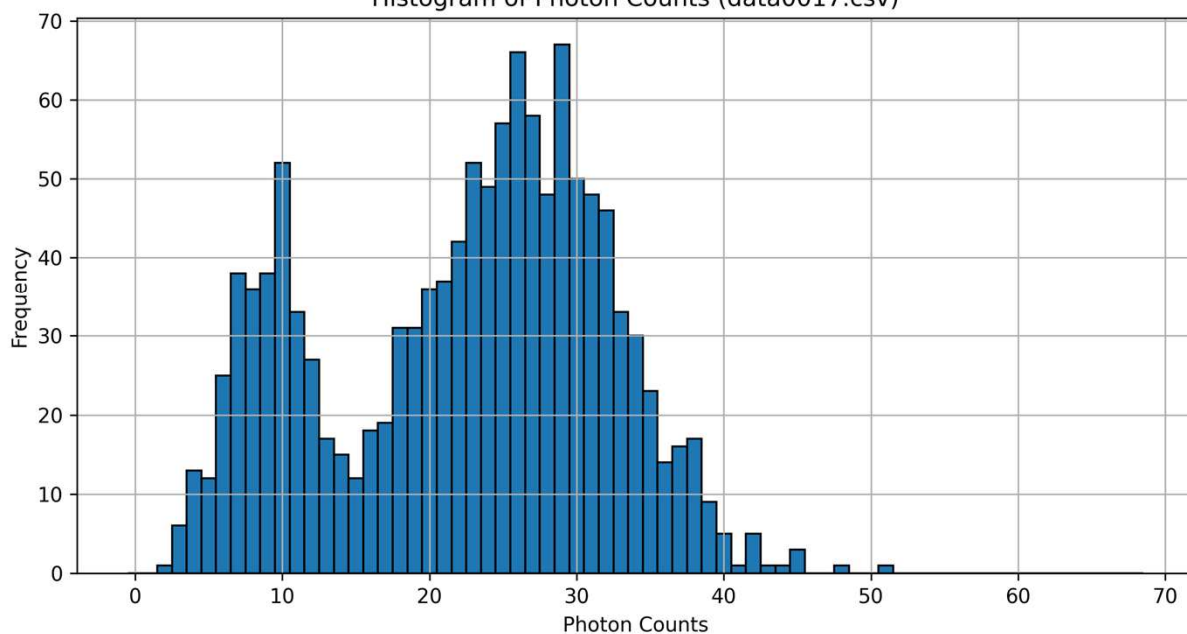
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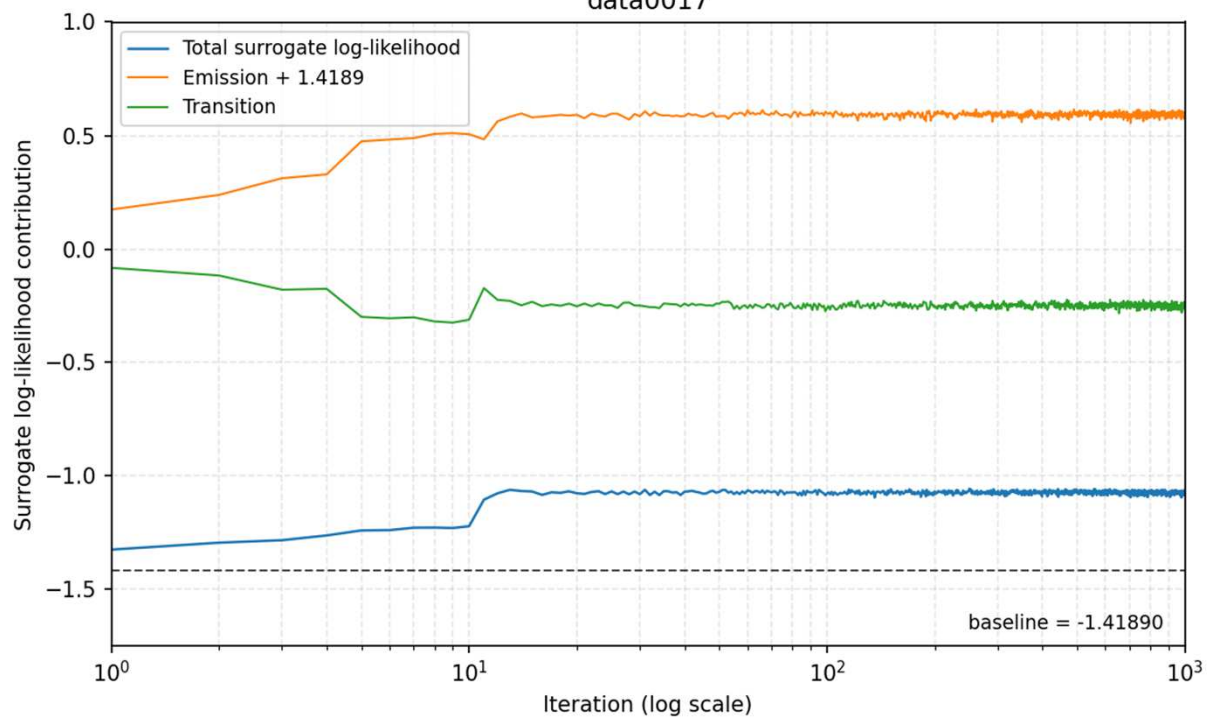
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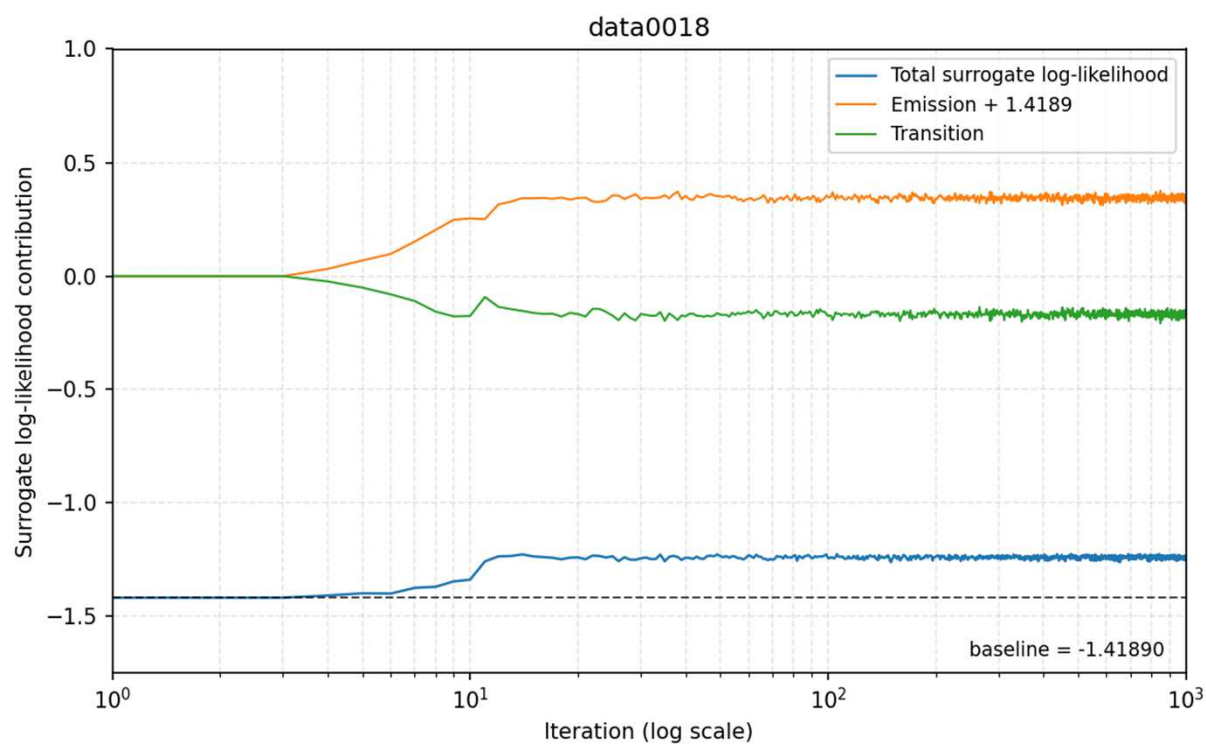
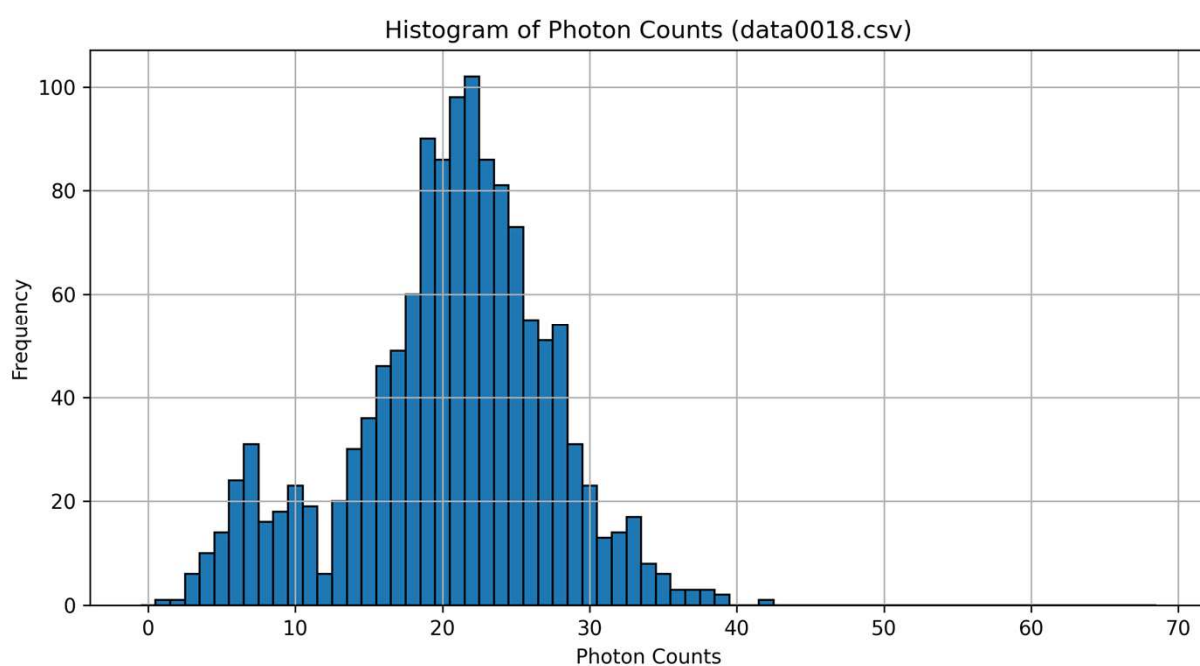
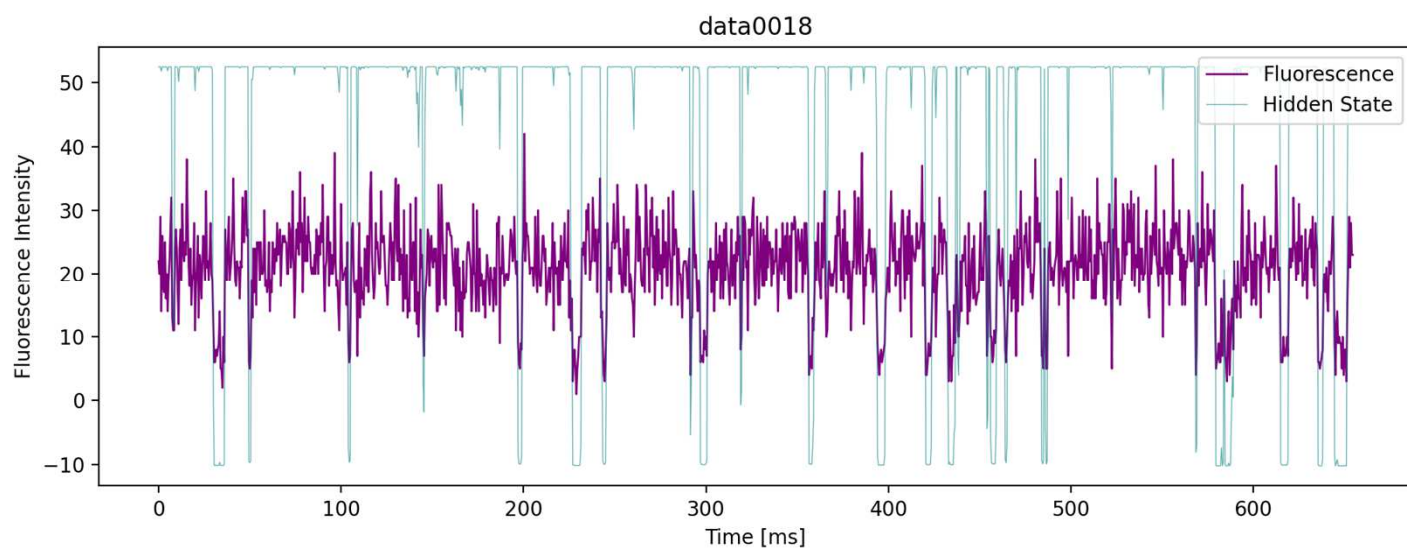


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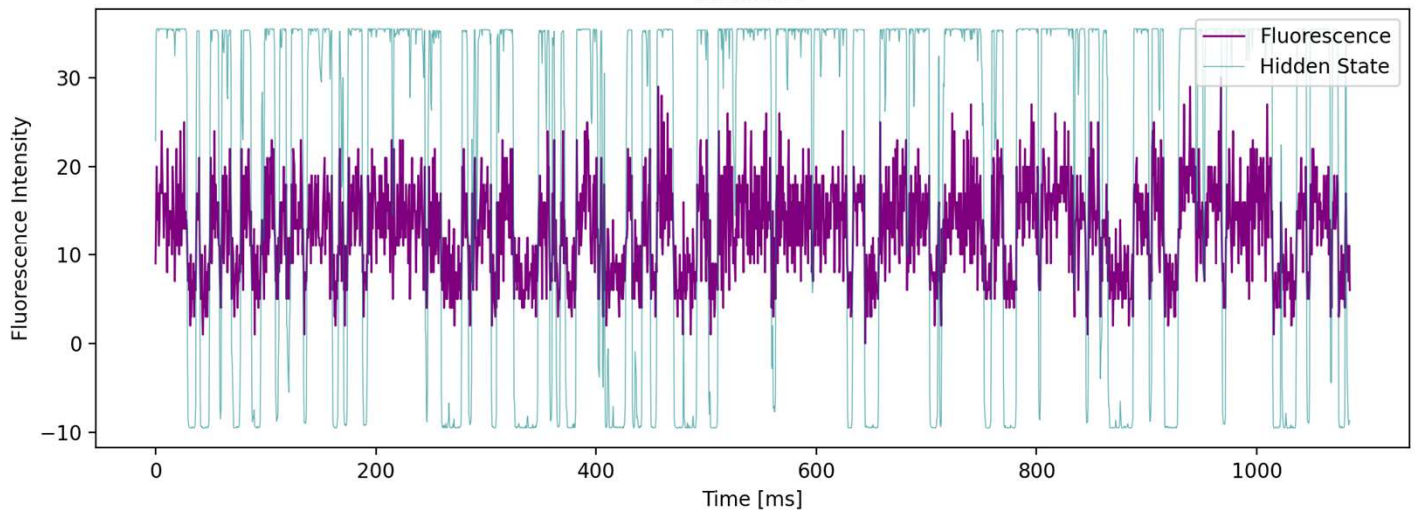


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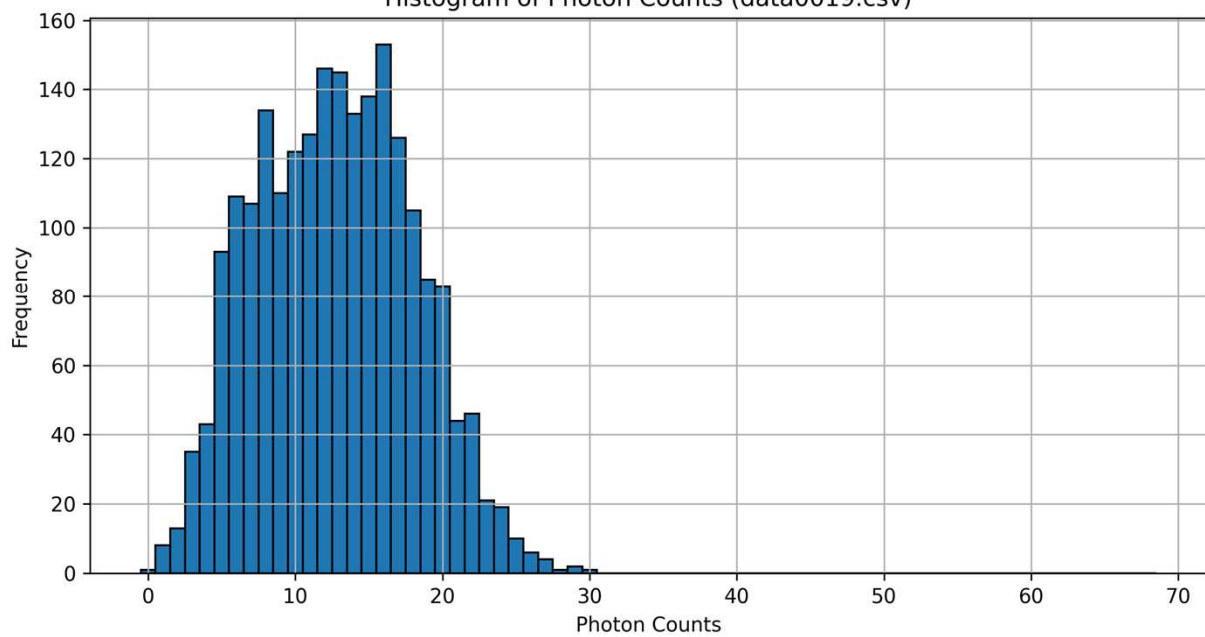




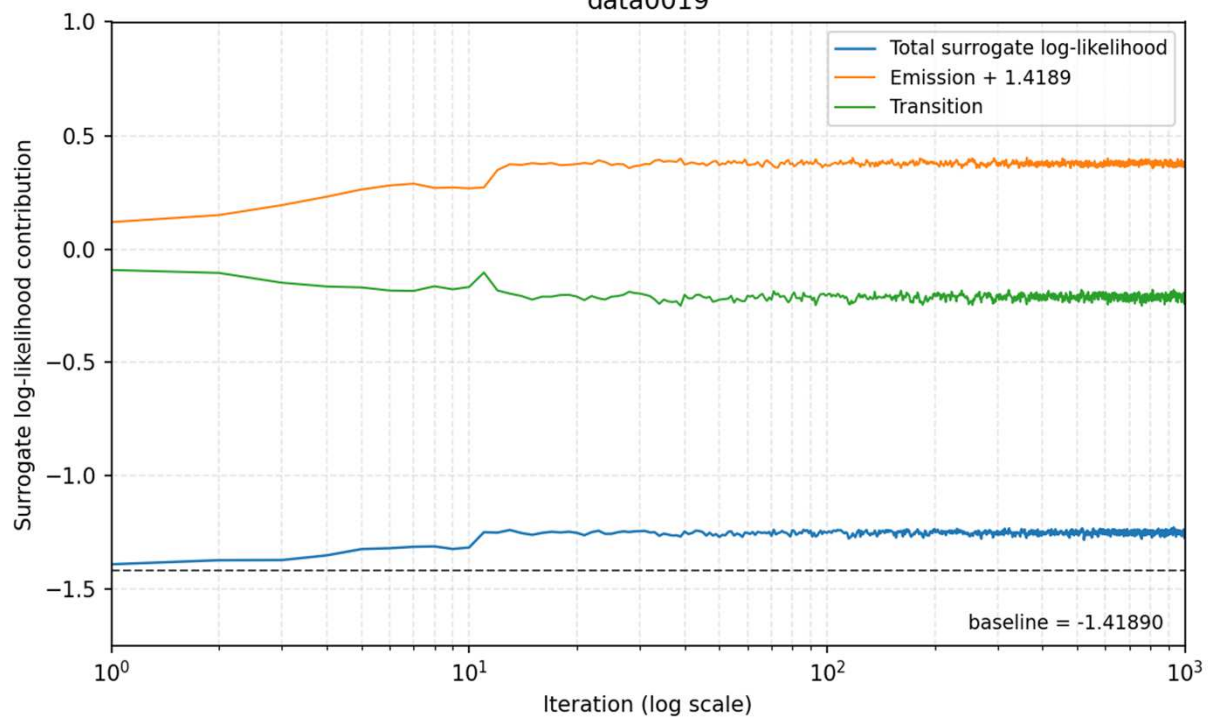
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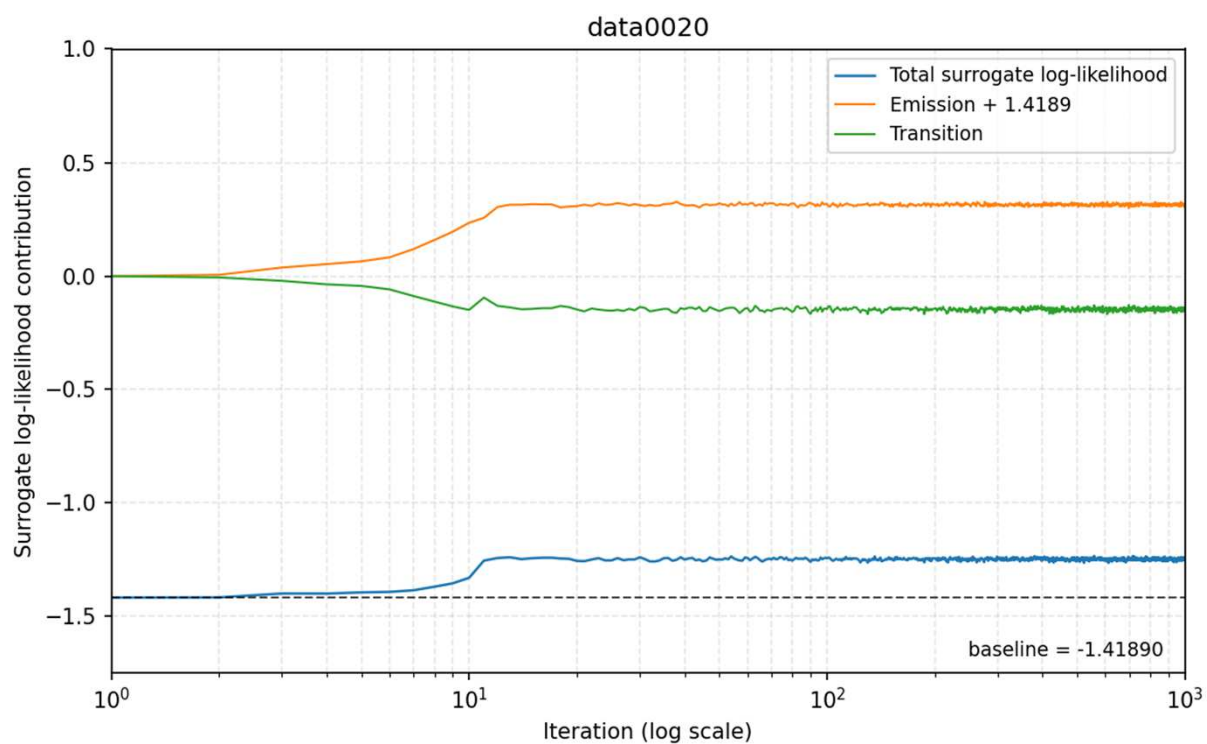
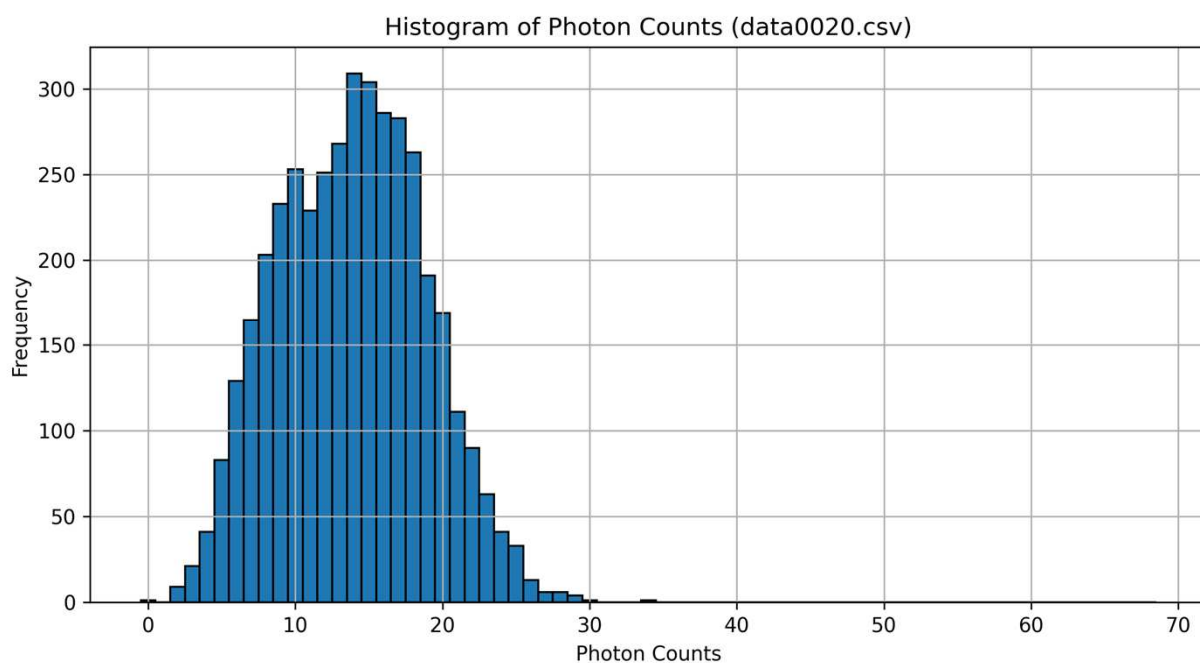
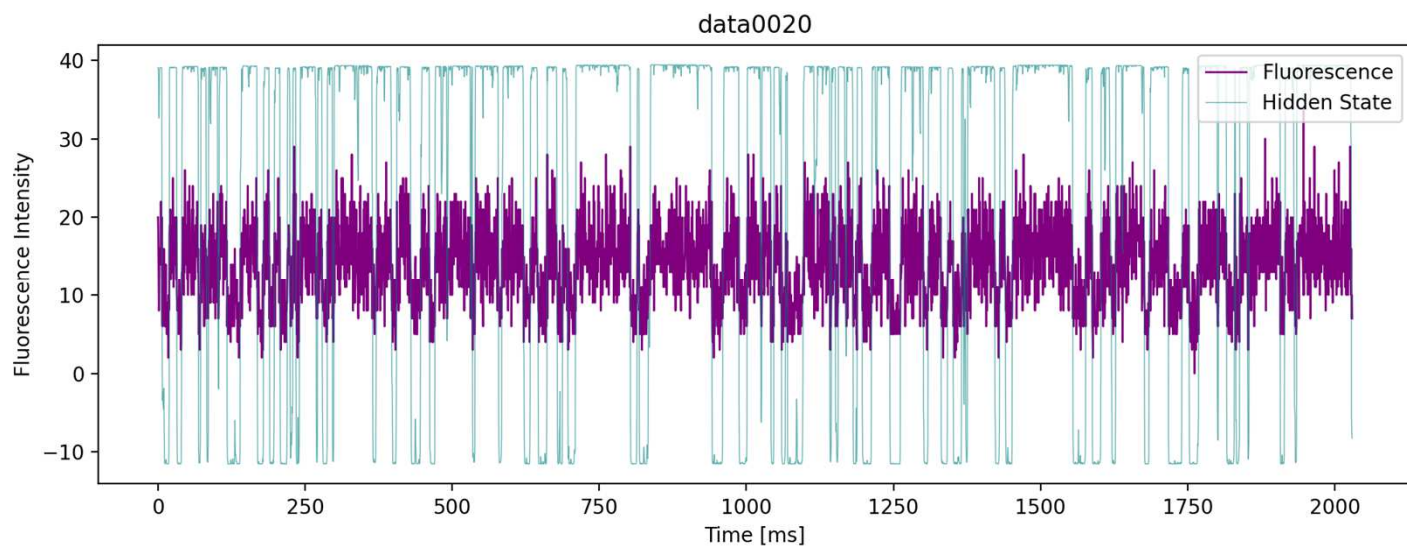


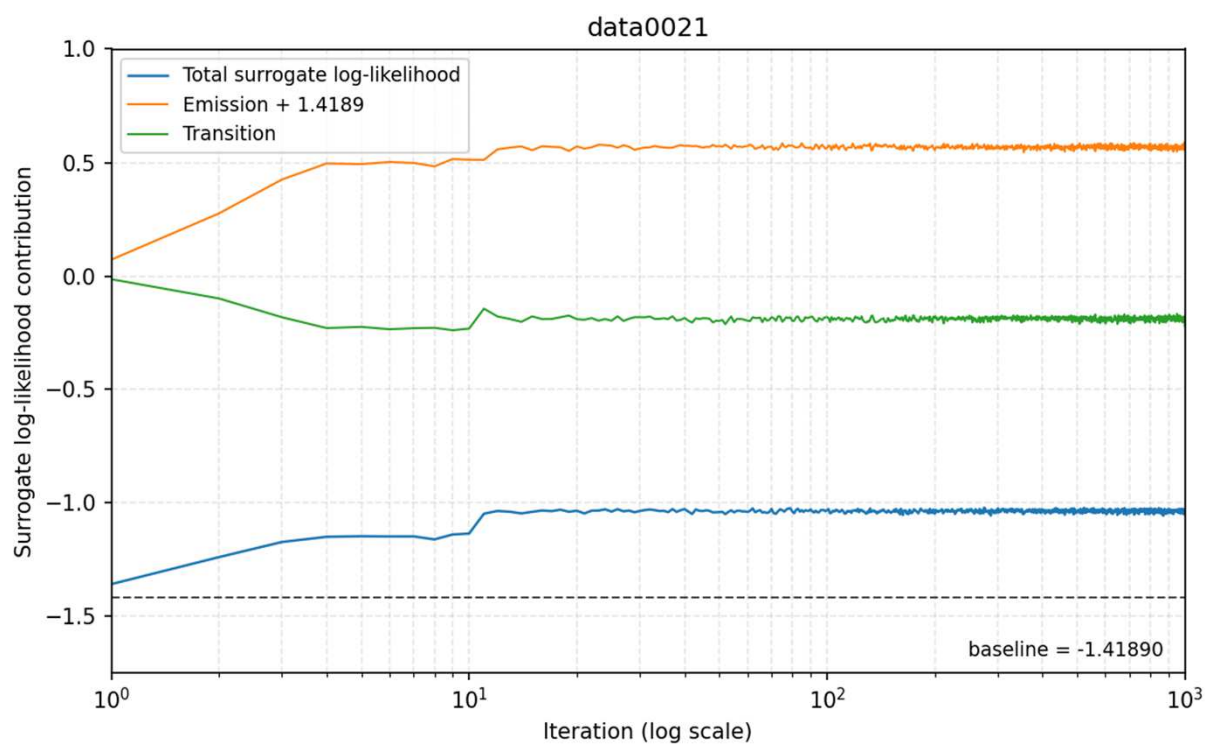
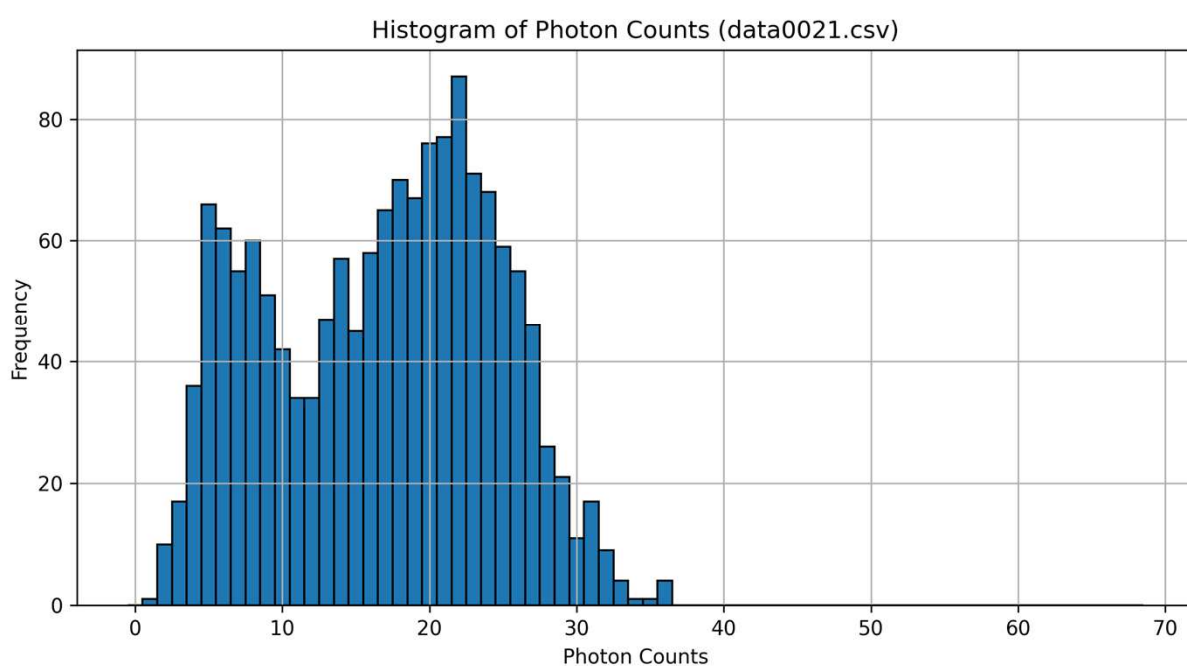
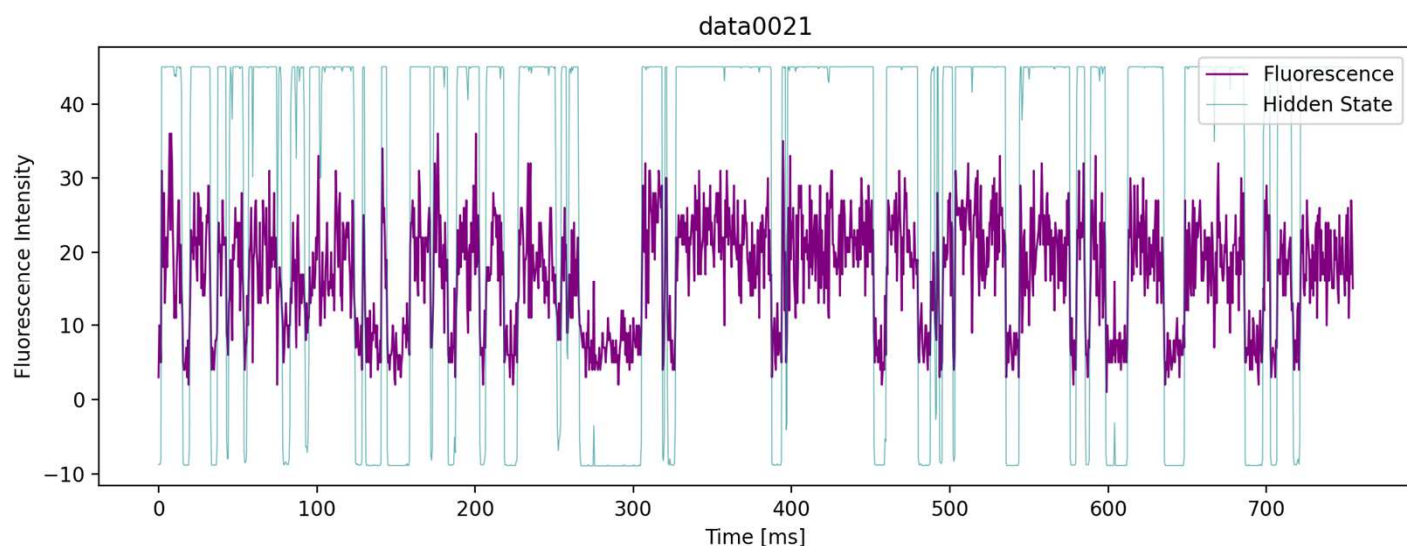
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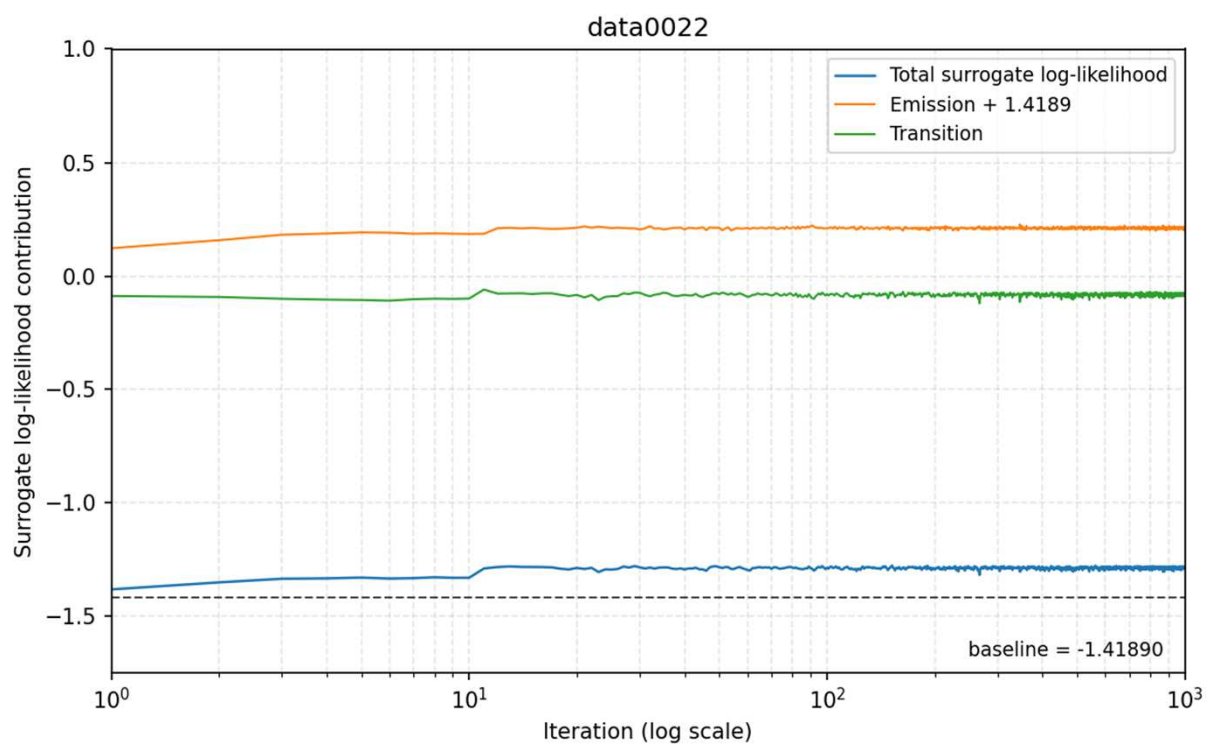
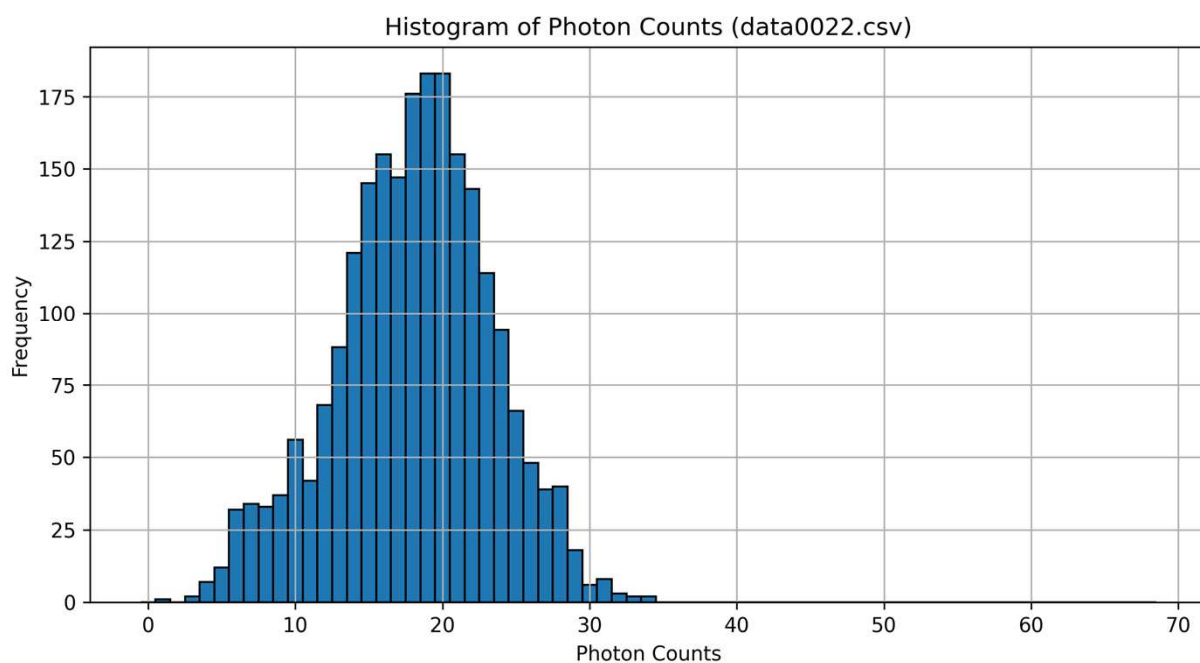
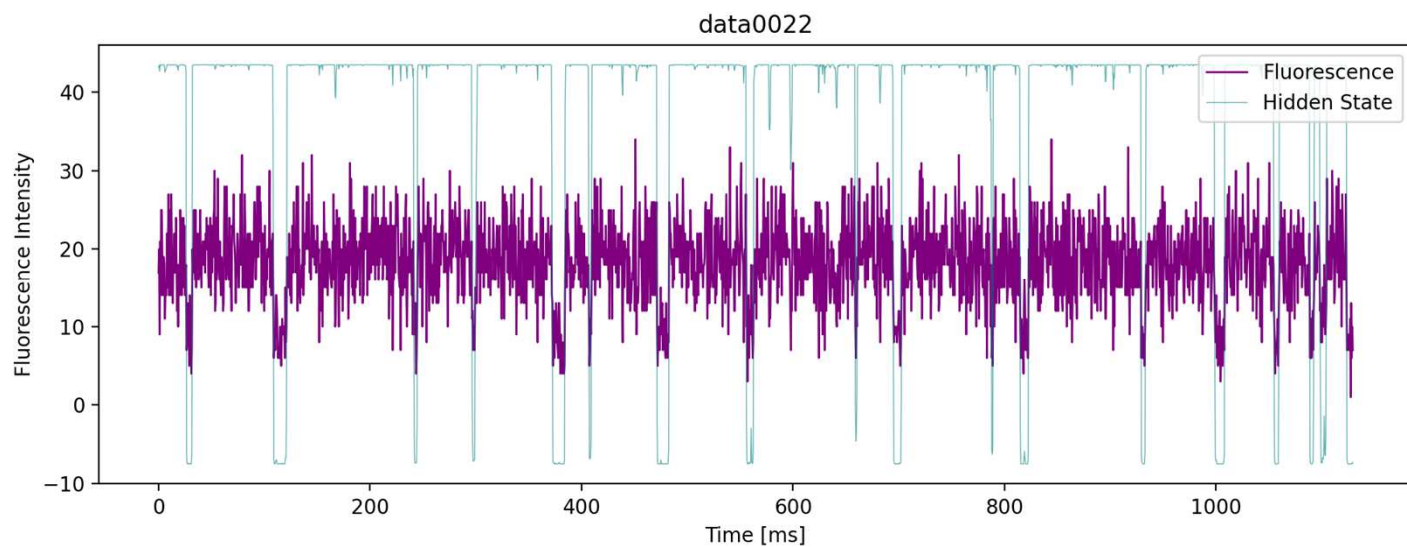


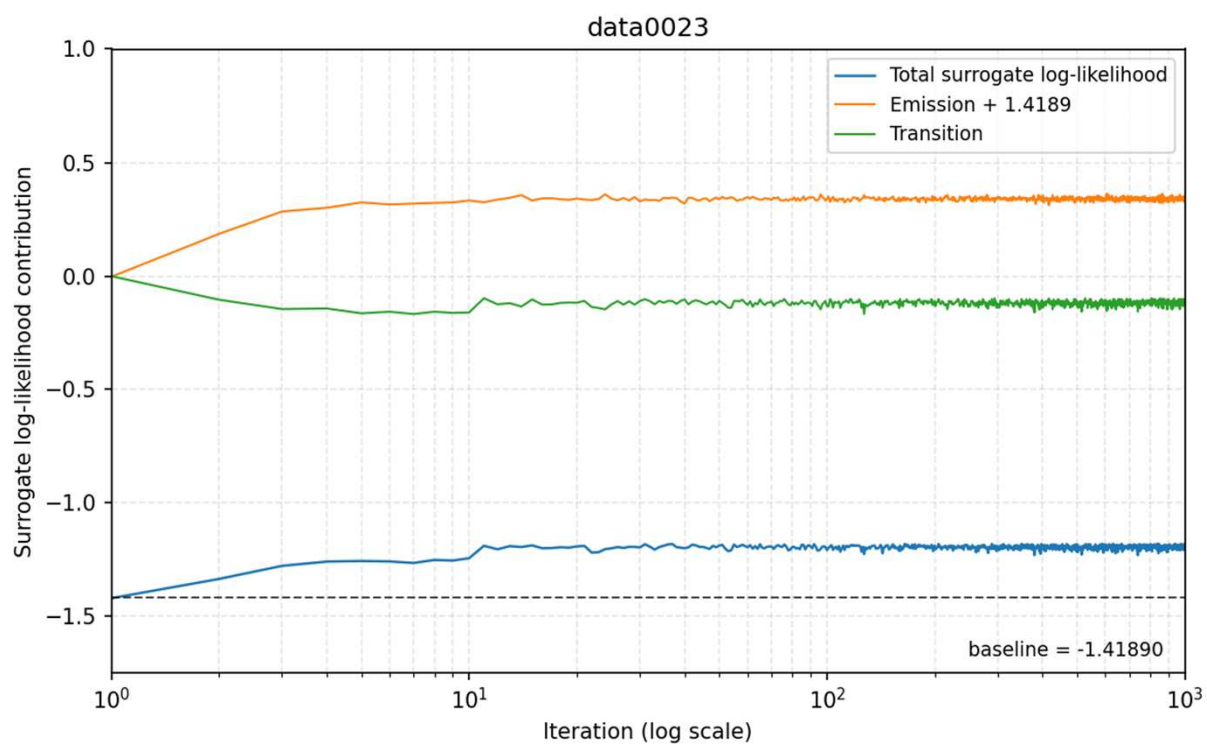
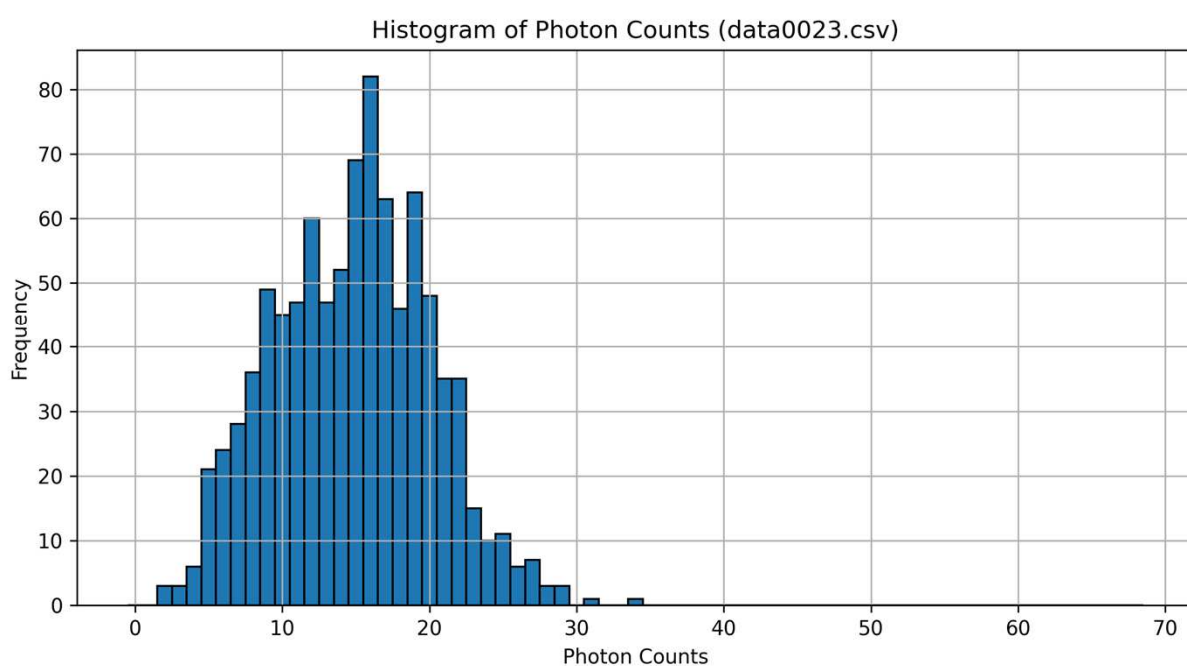
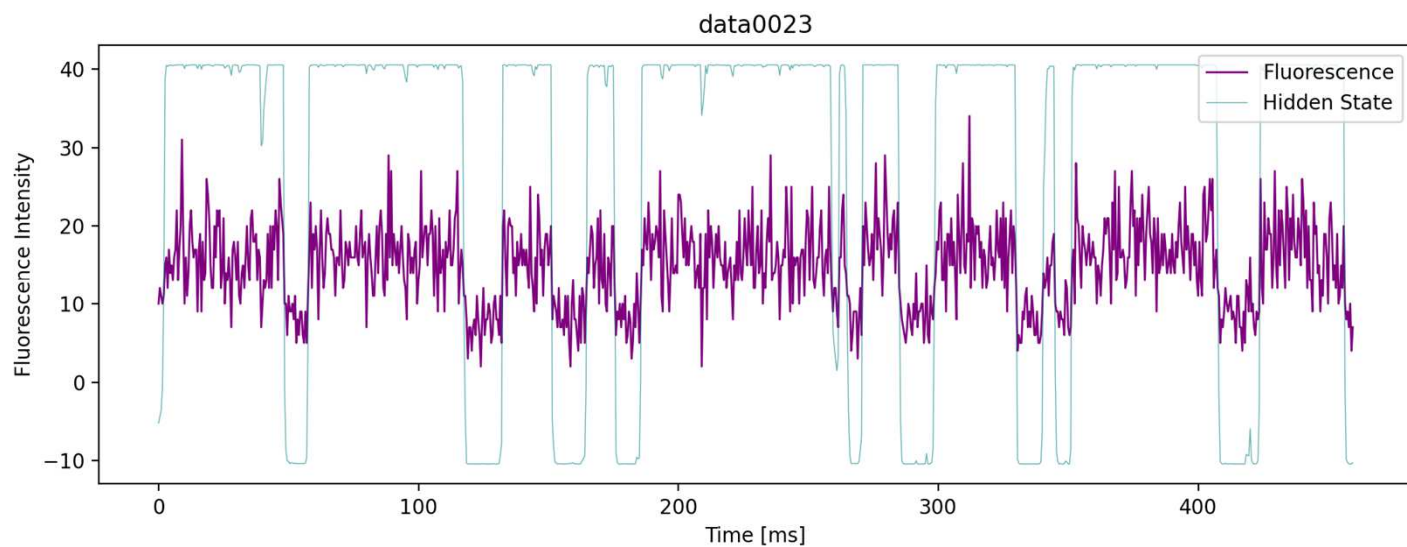
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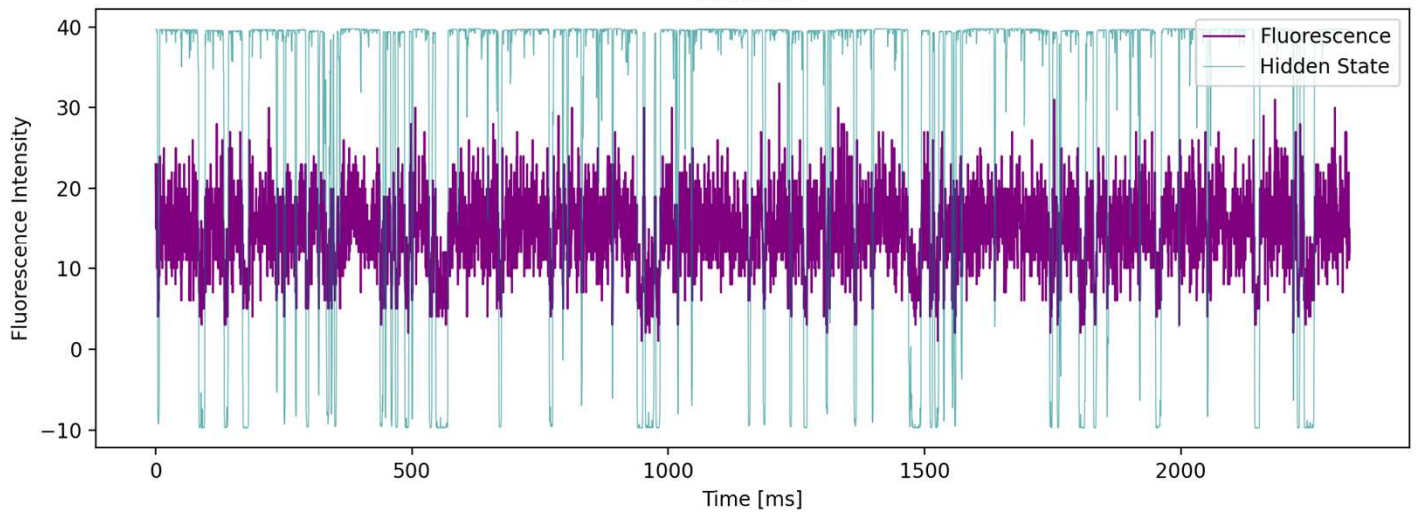




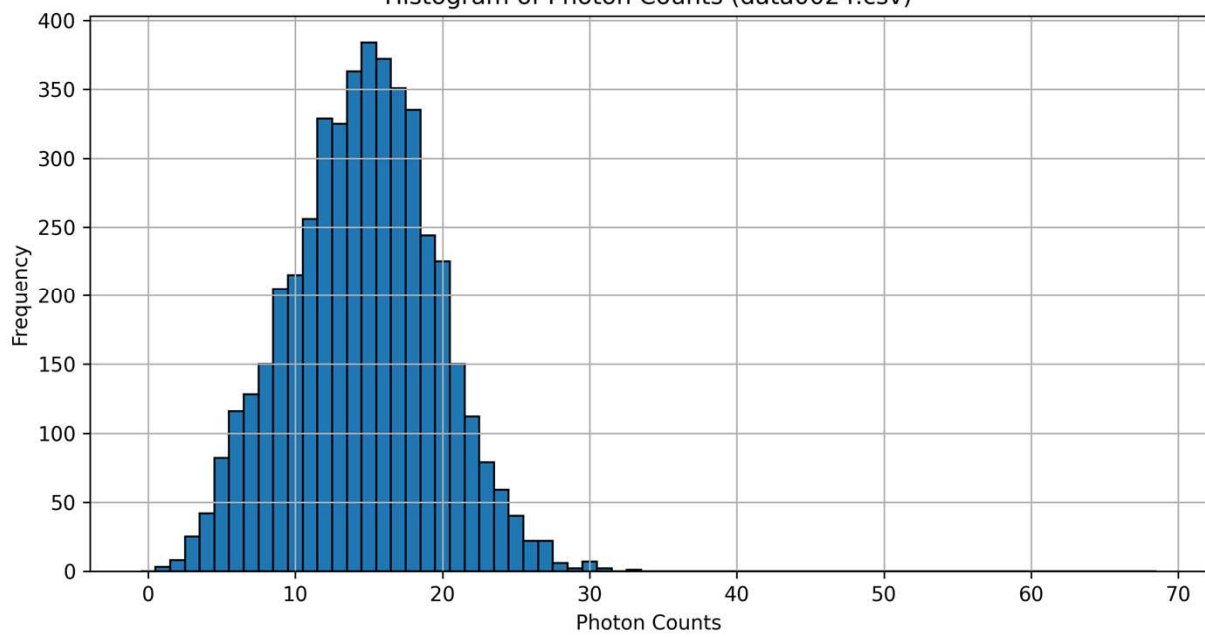




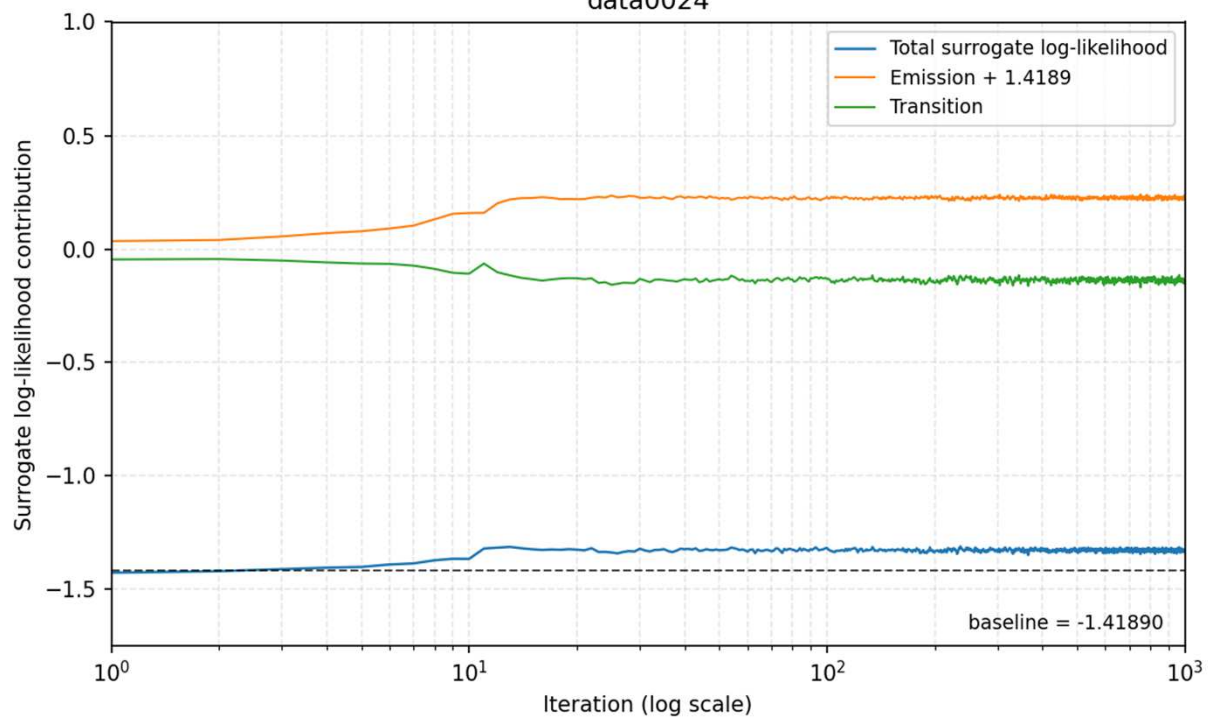
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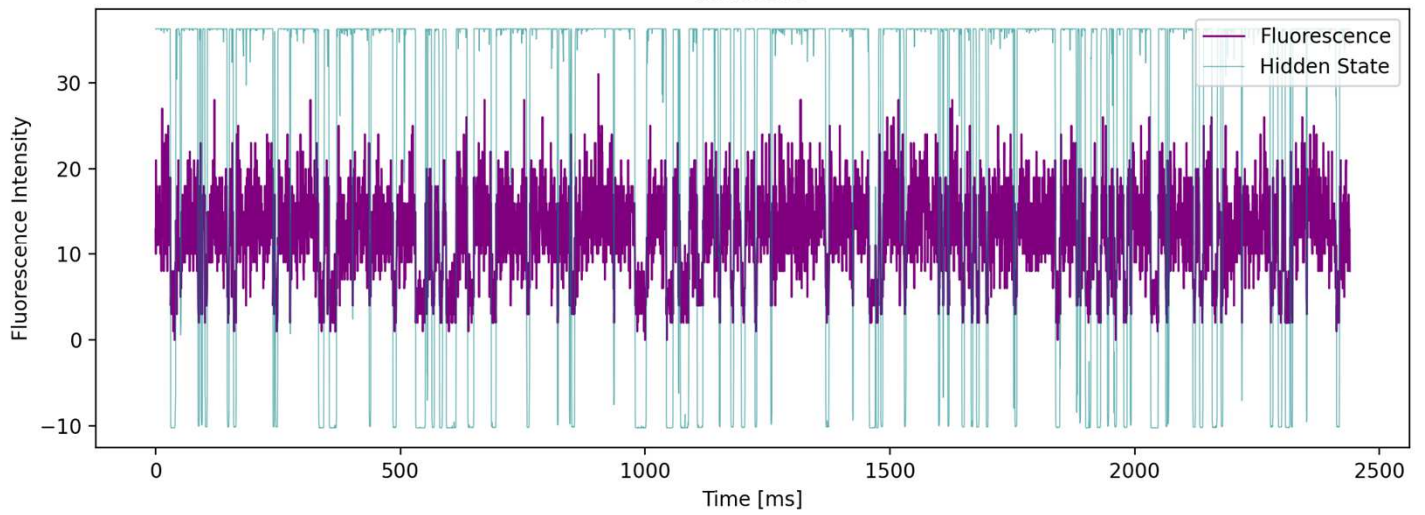
Histogram of Photon Counts (data0024.csv)



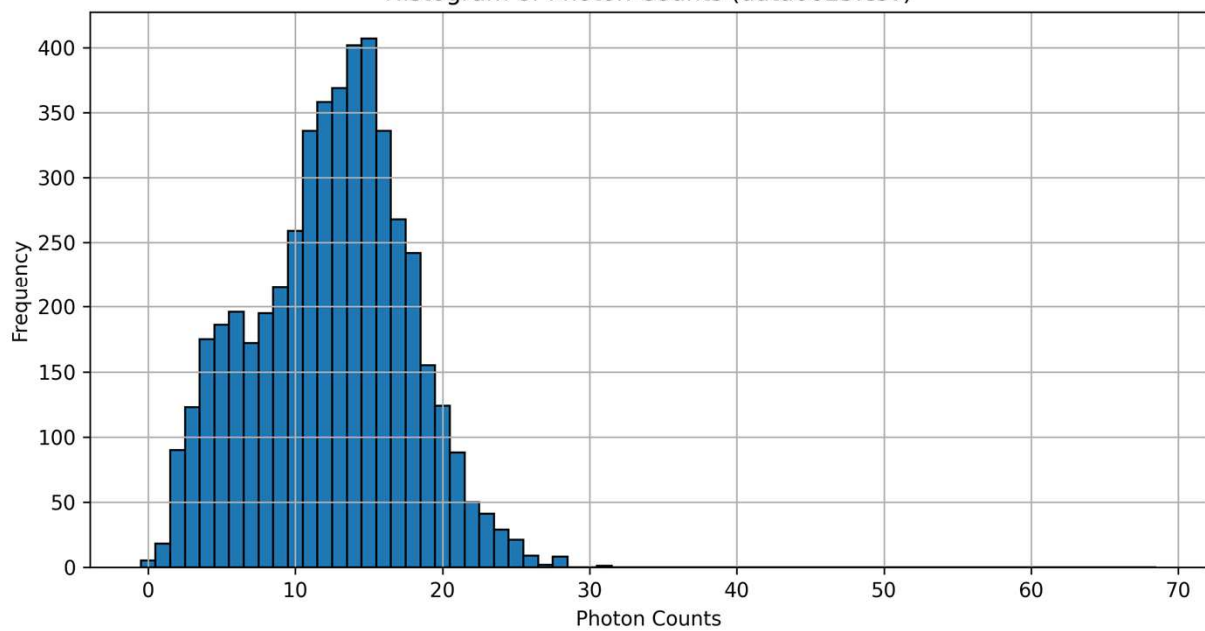
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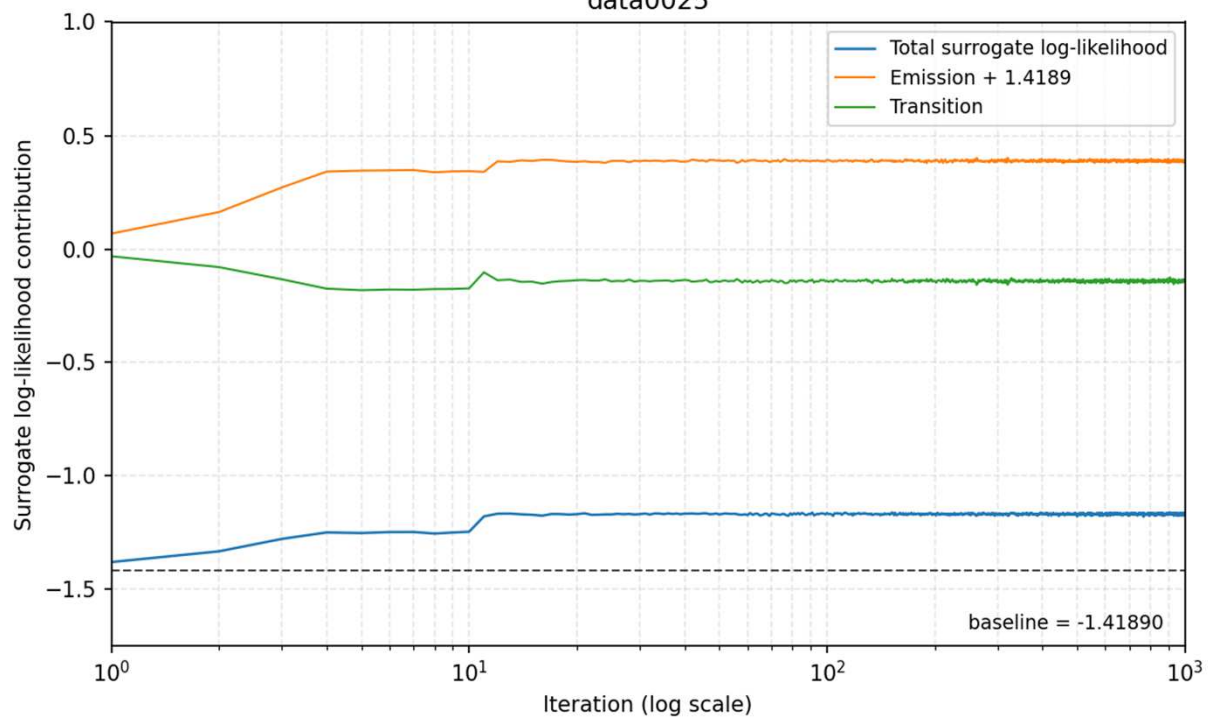
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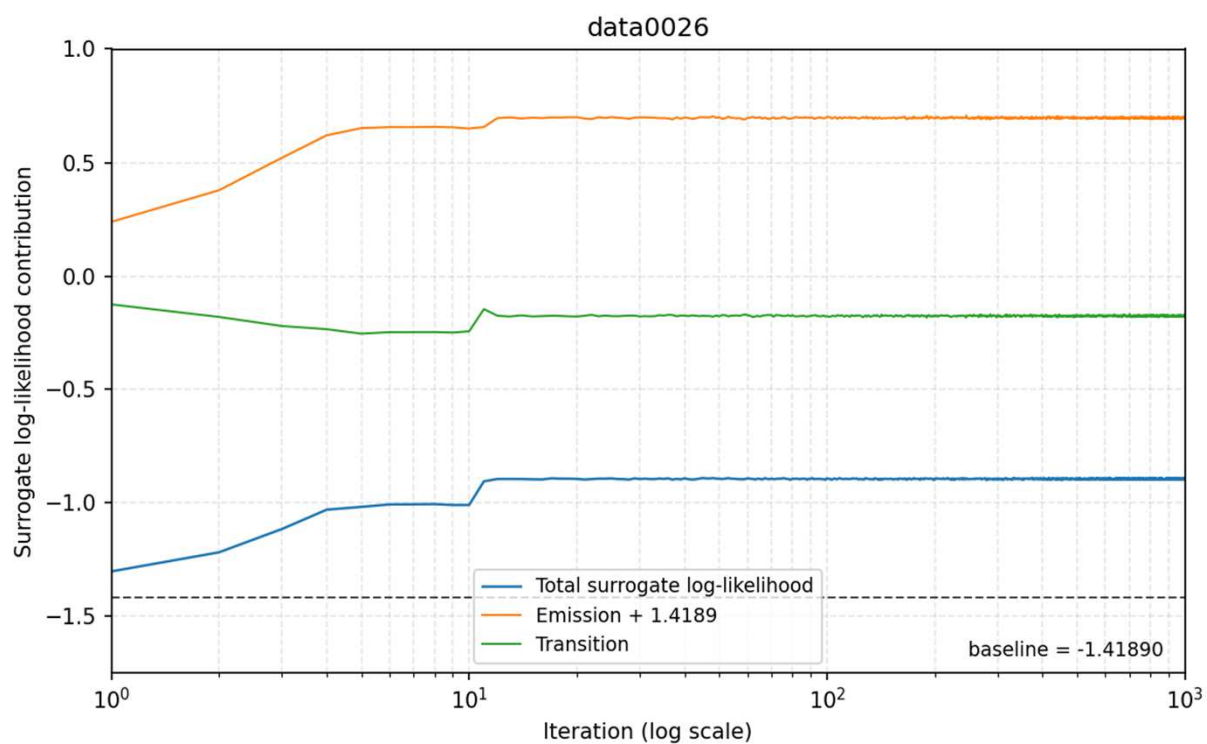
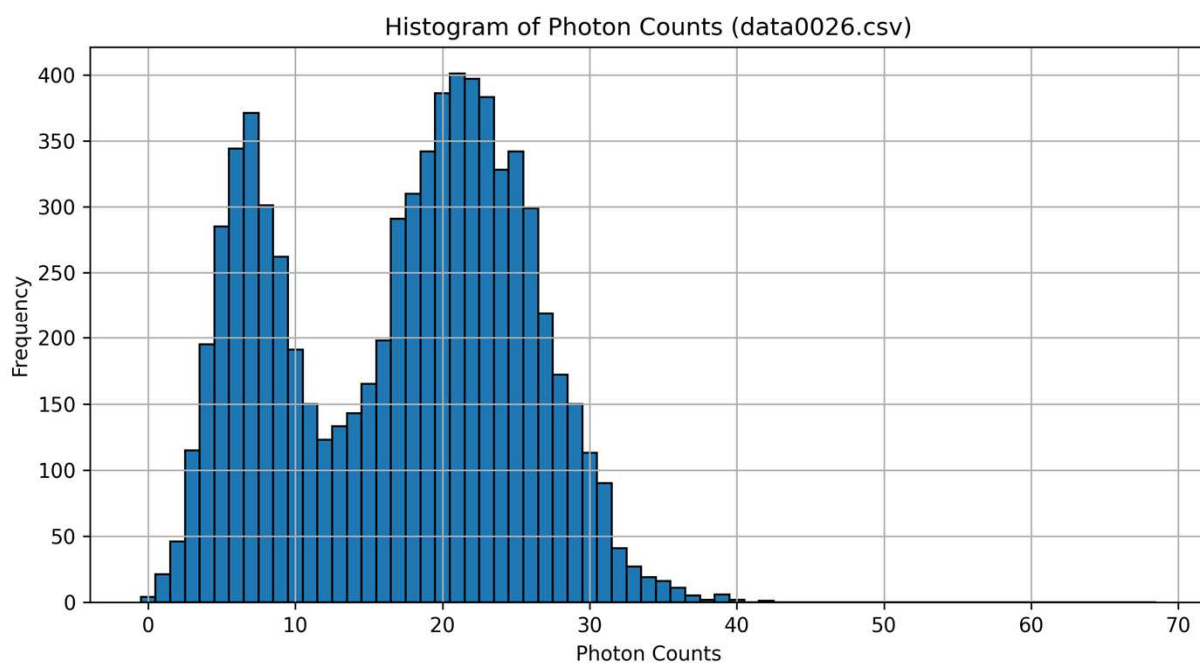
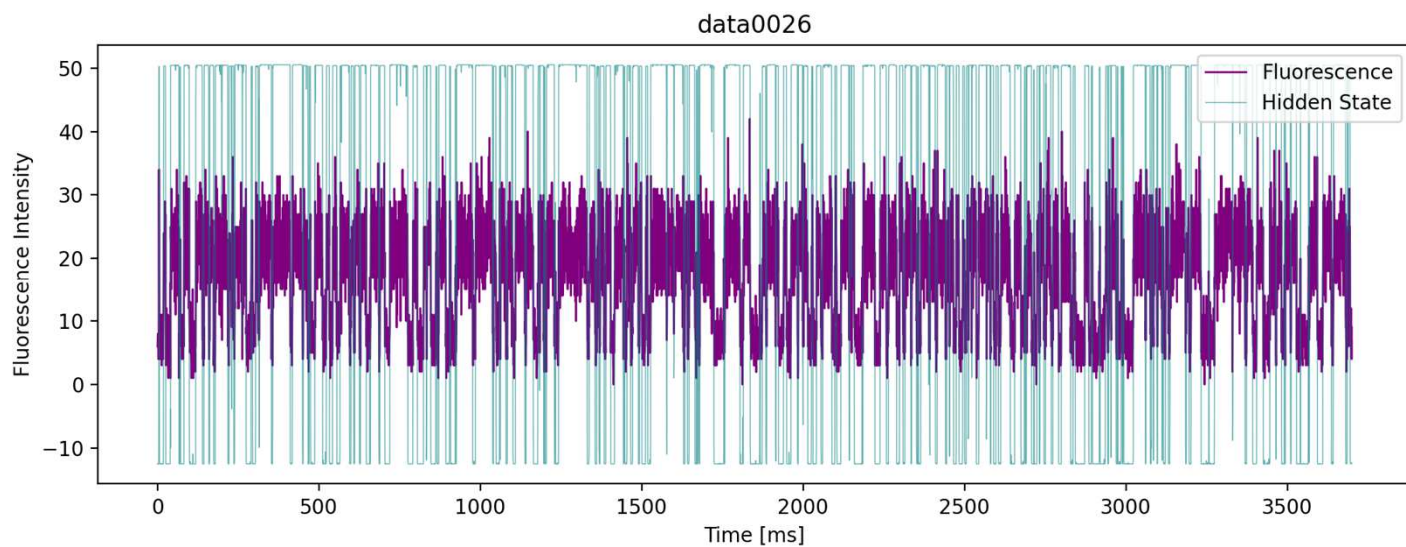


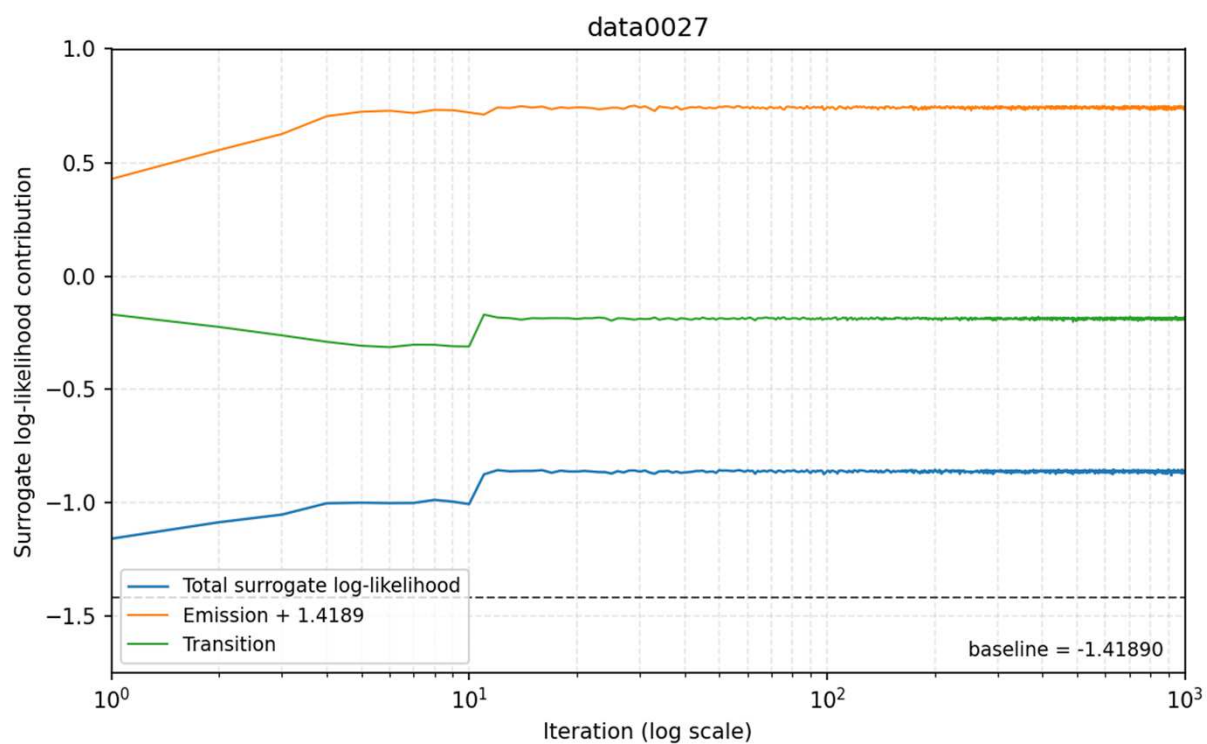
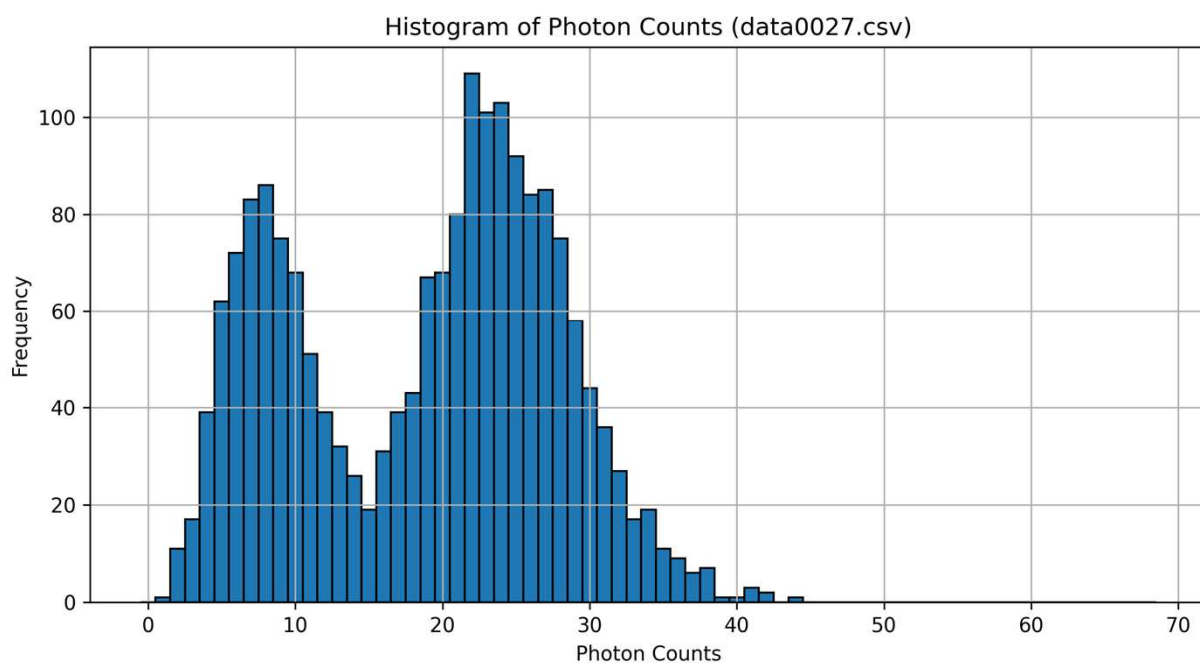
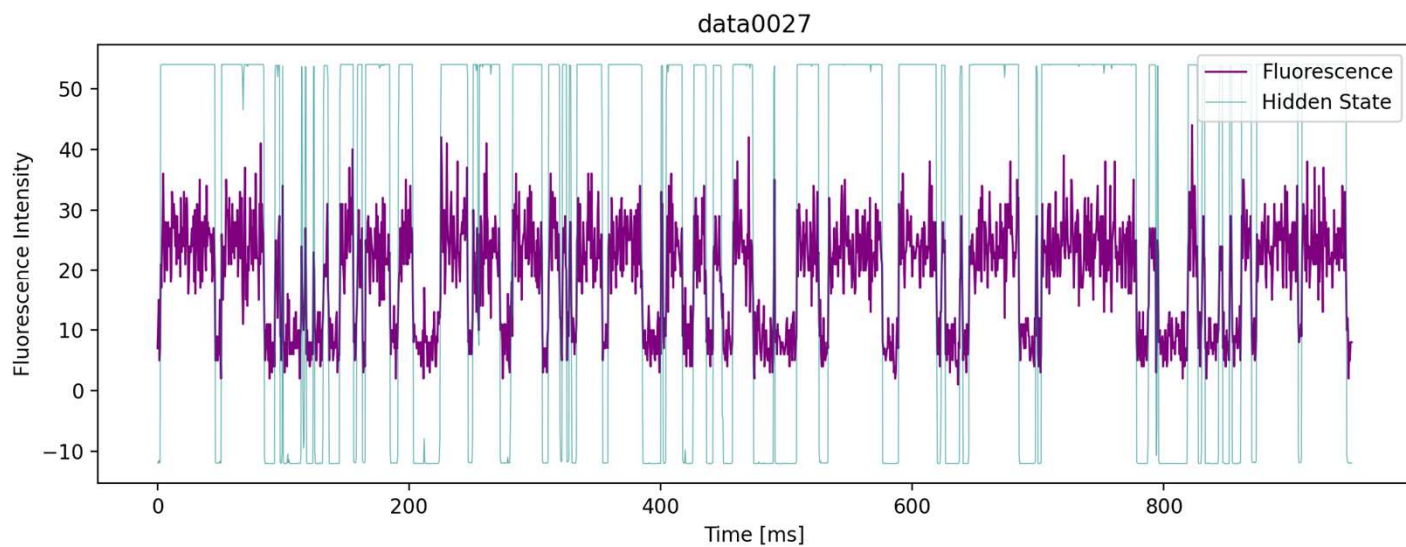
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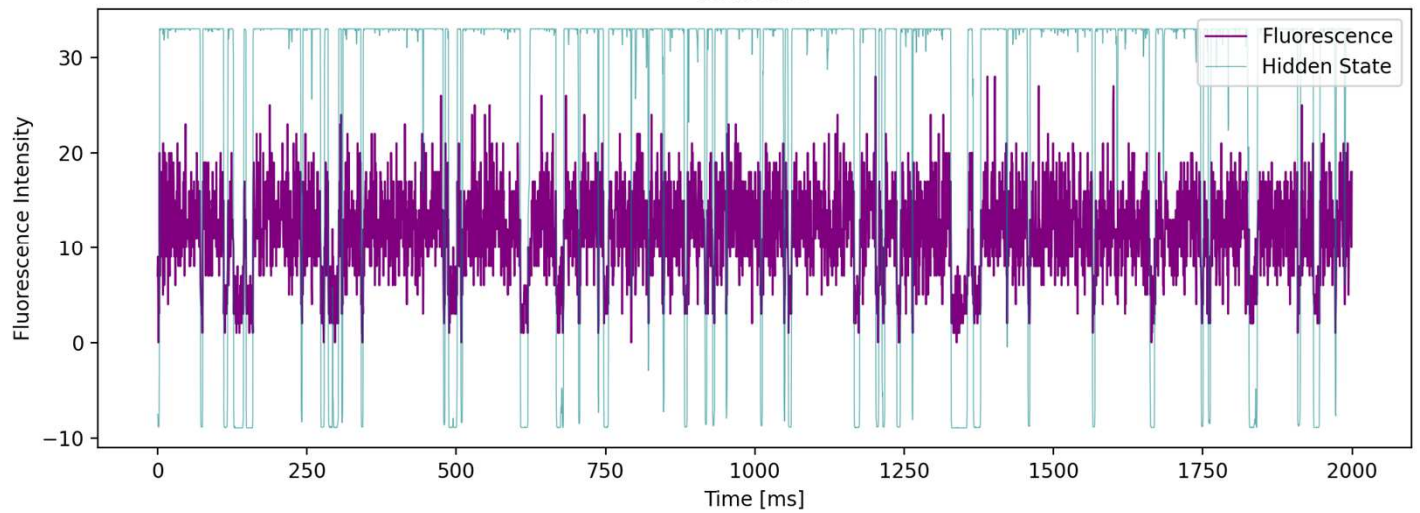
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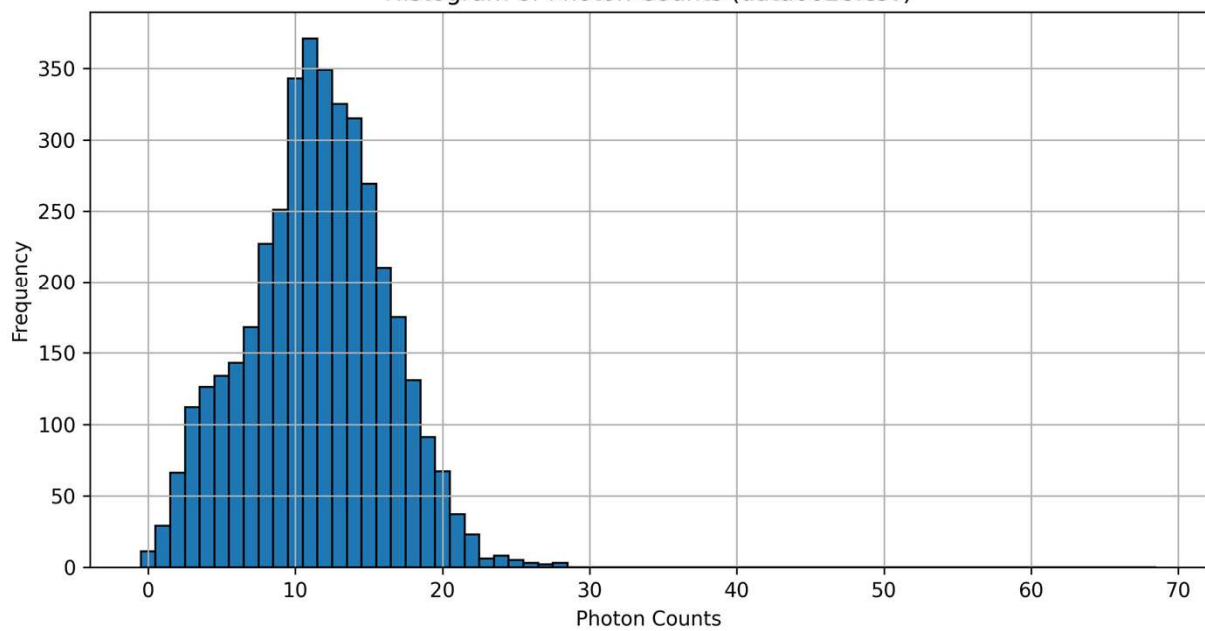




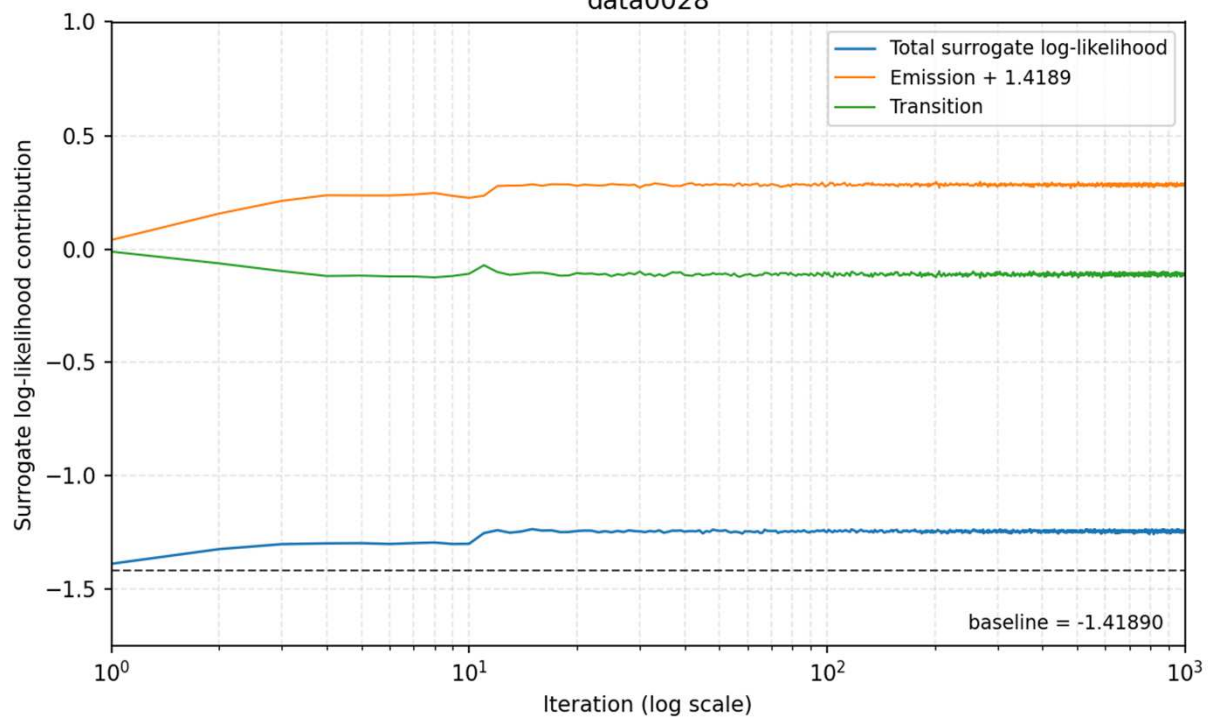
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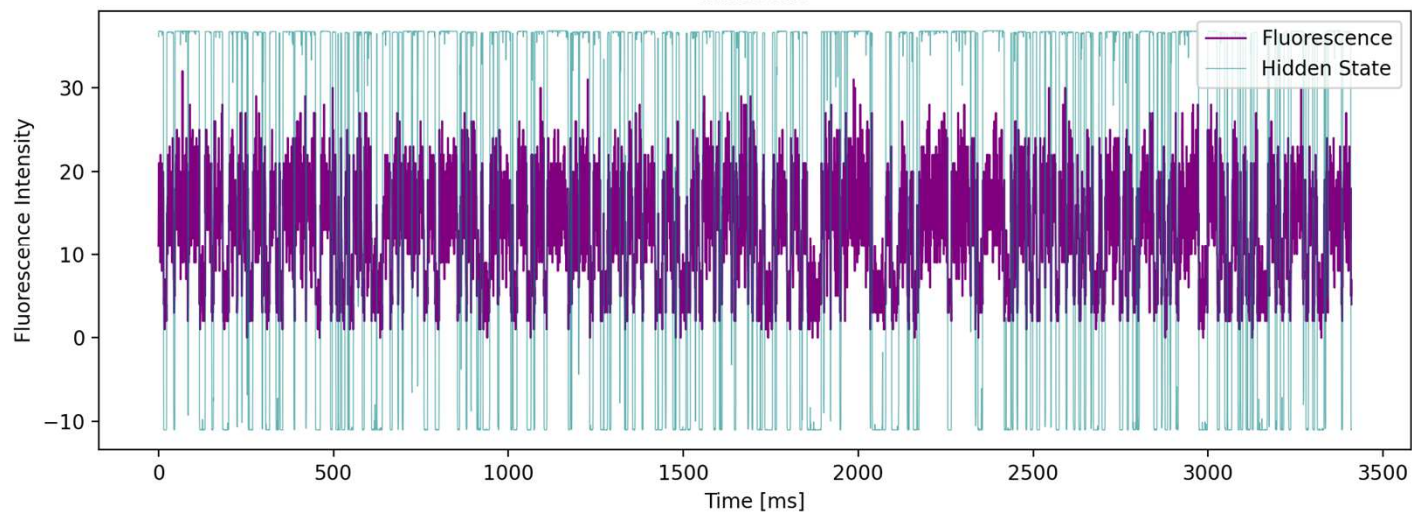
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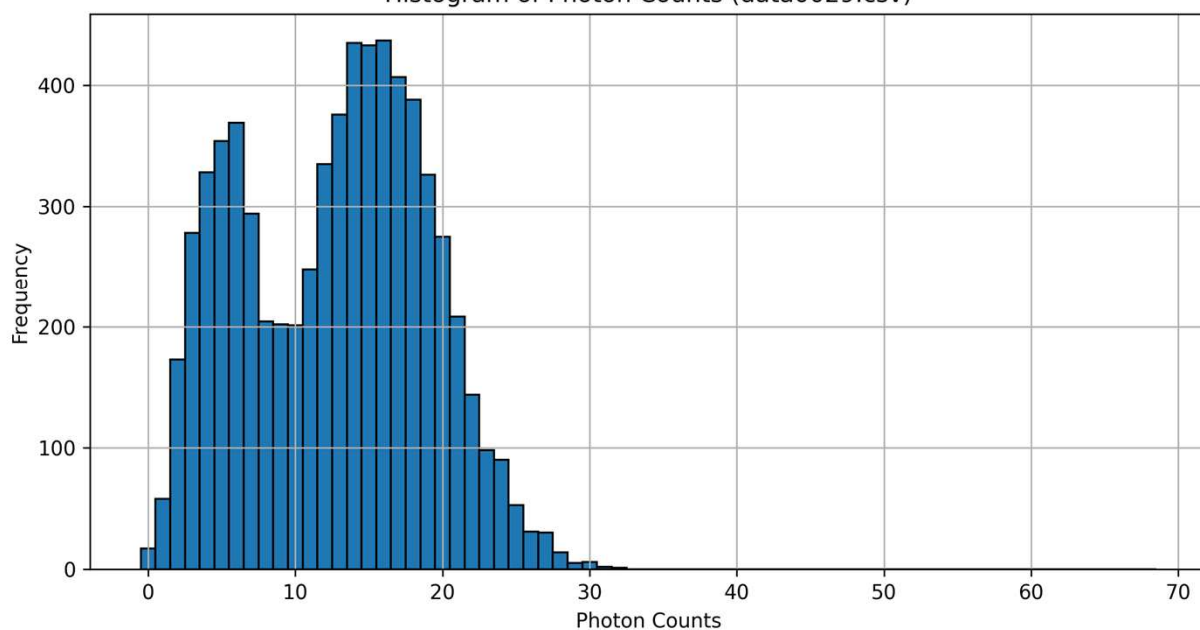
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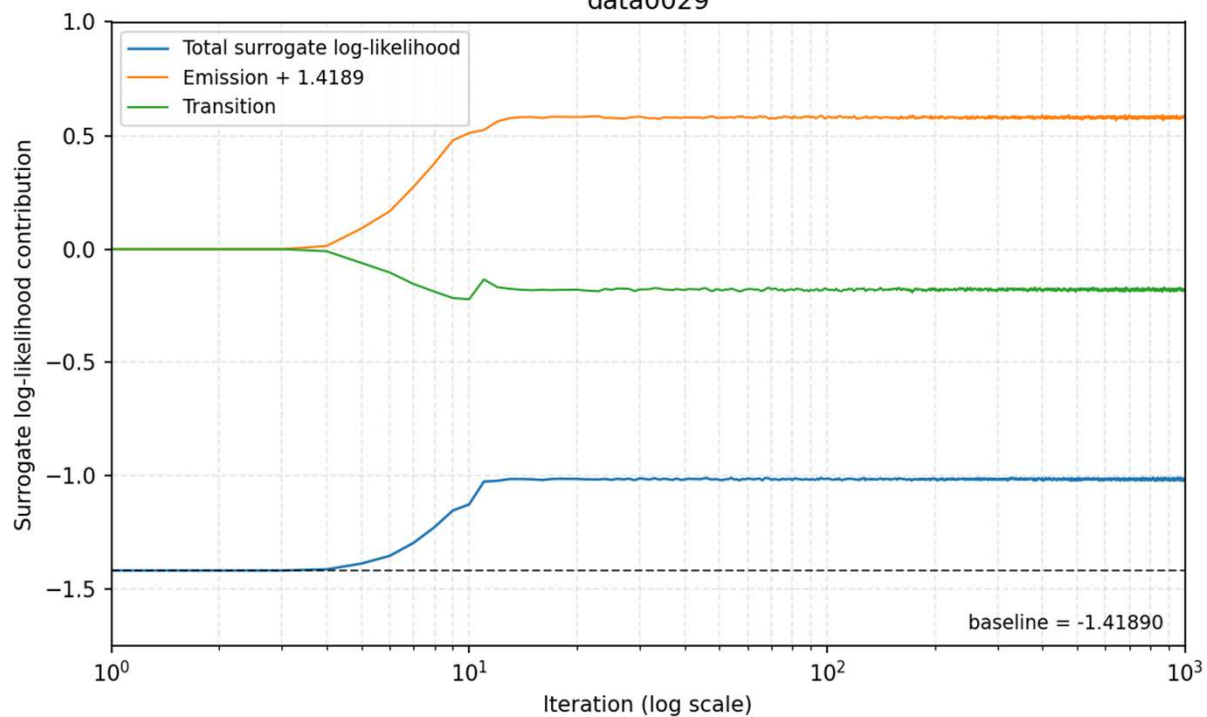
data0029



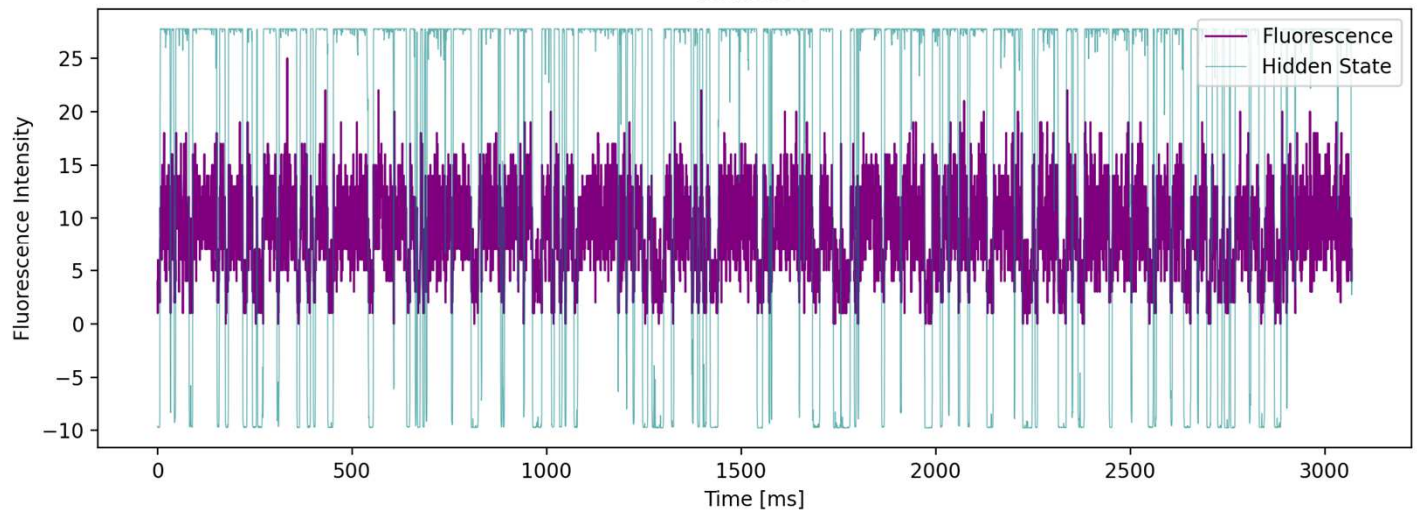
Histogram of Photon Counts (data0029.csv)



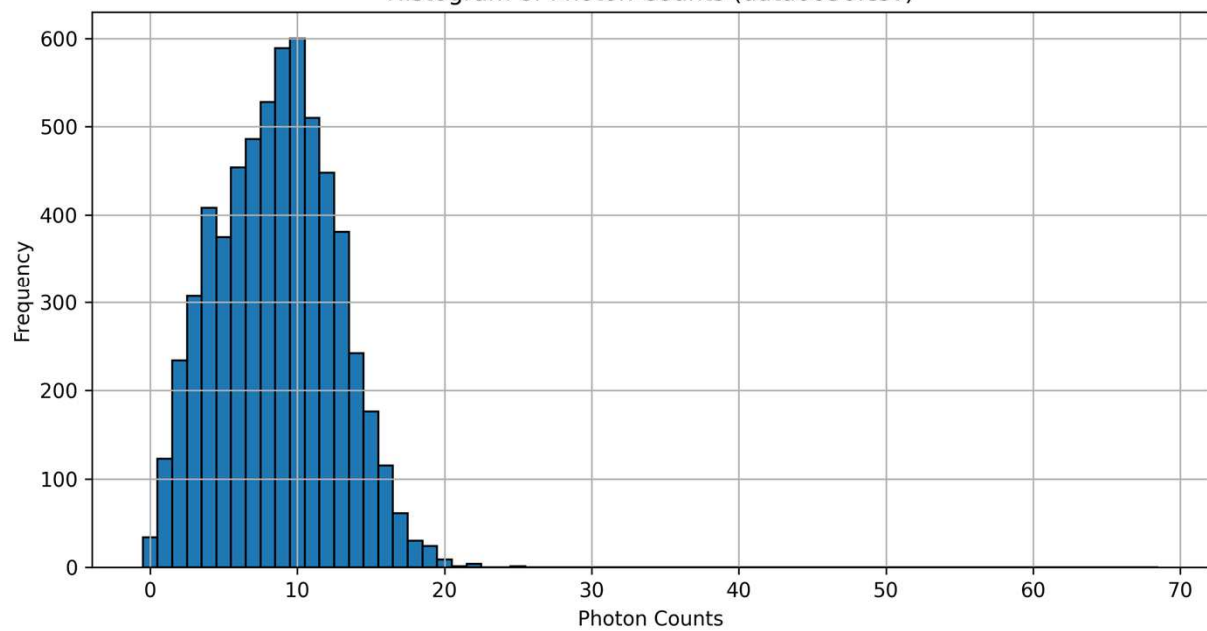
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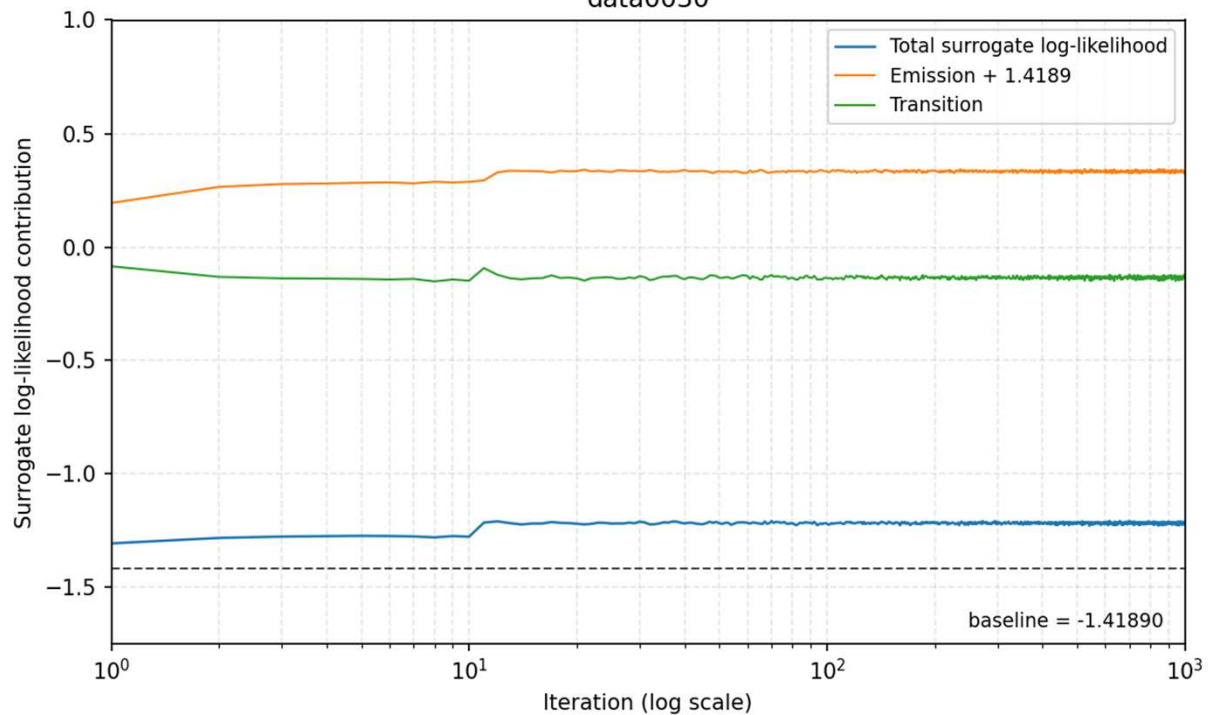
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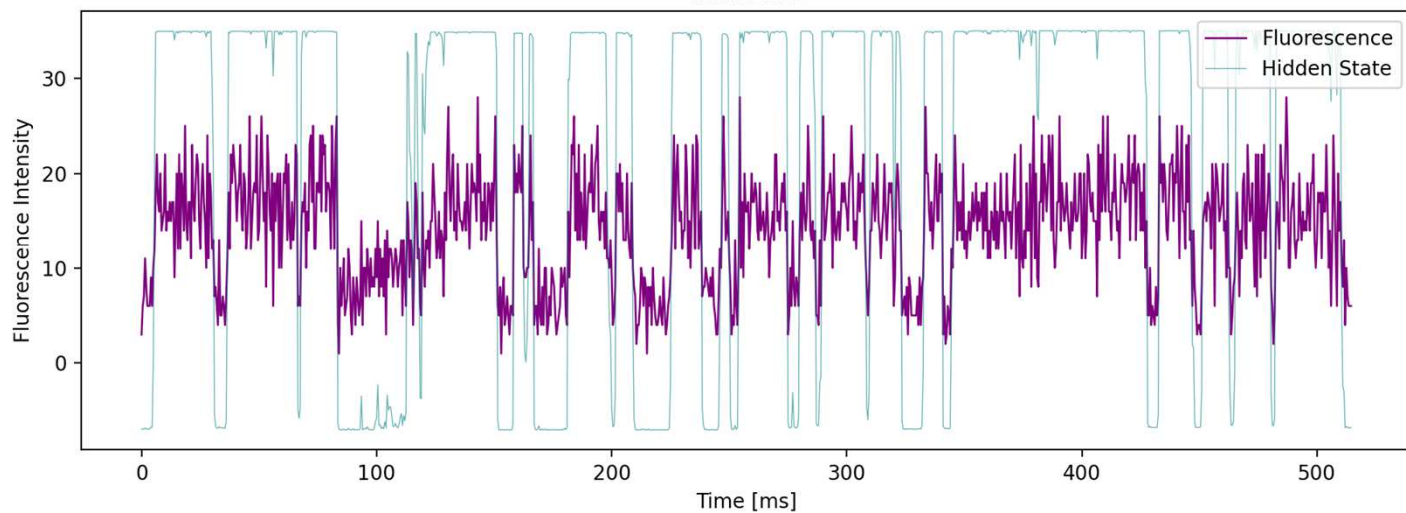
Histogram of Photon Counts (data0030.csv)



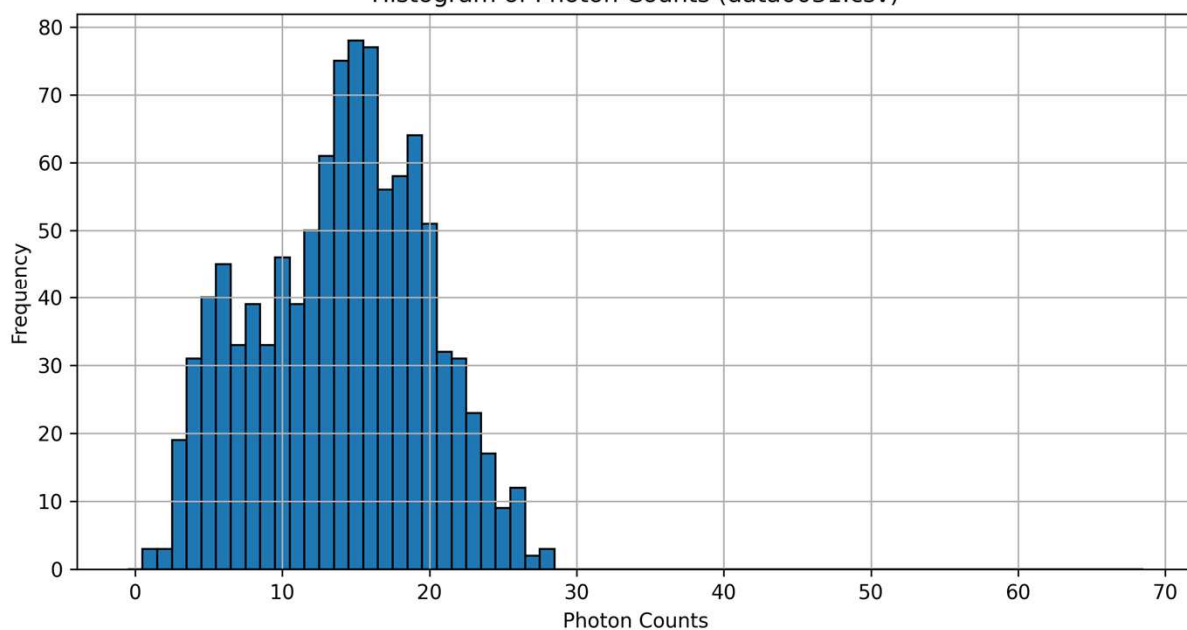
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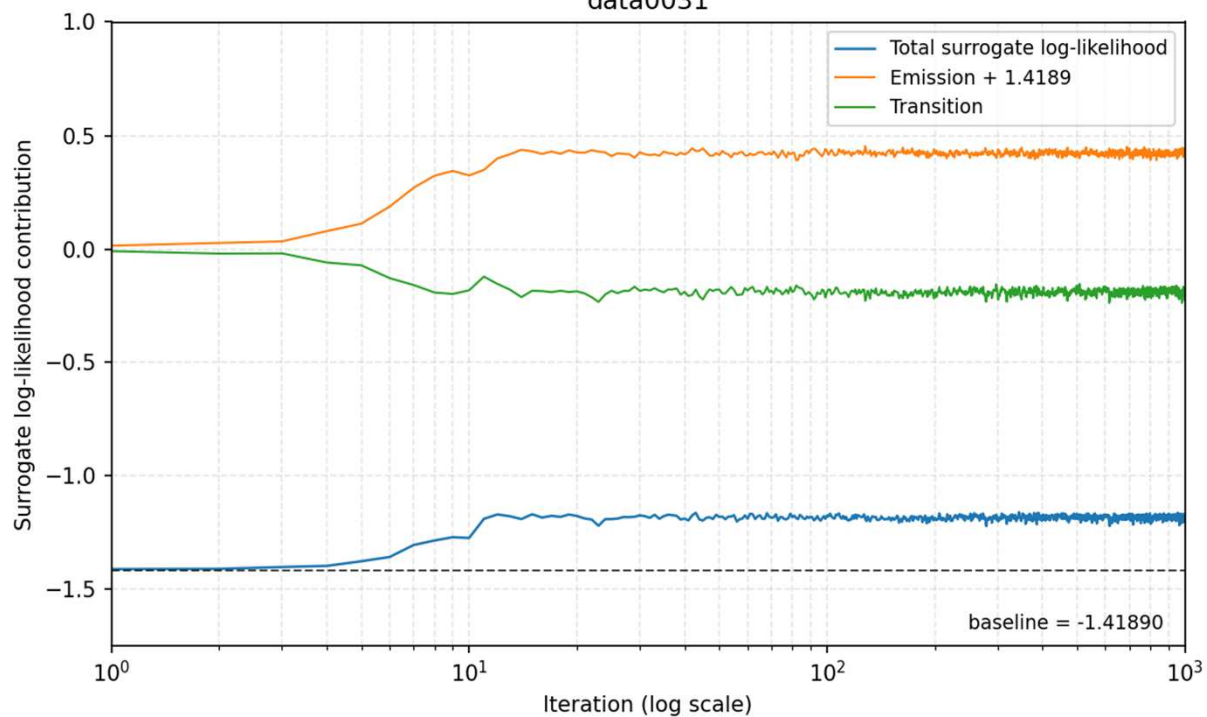
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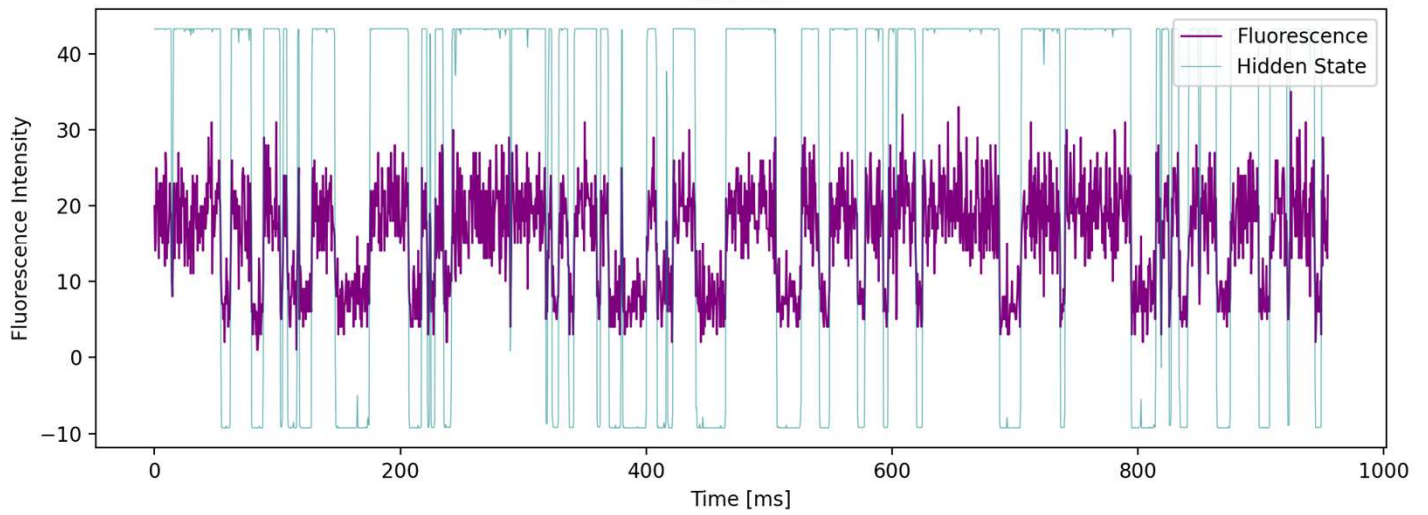
Histogram of Photon Counts (data0031.csv)



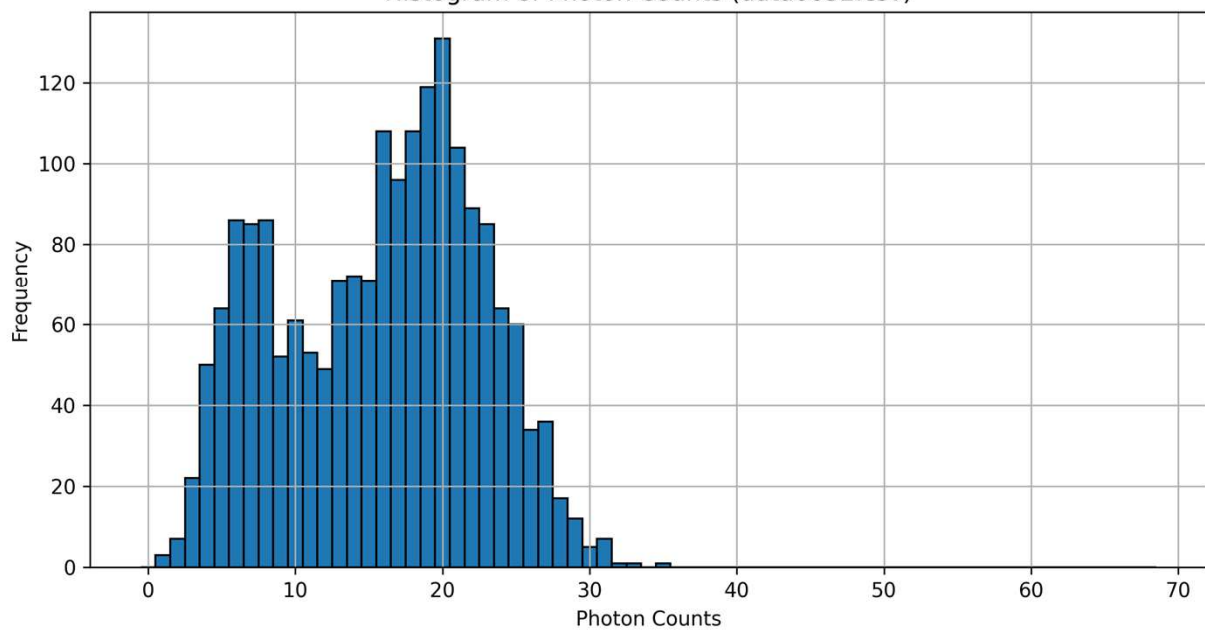
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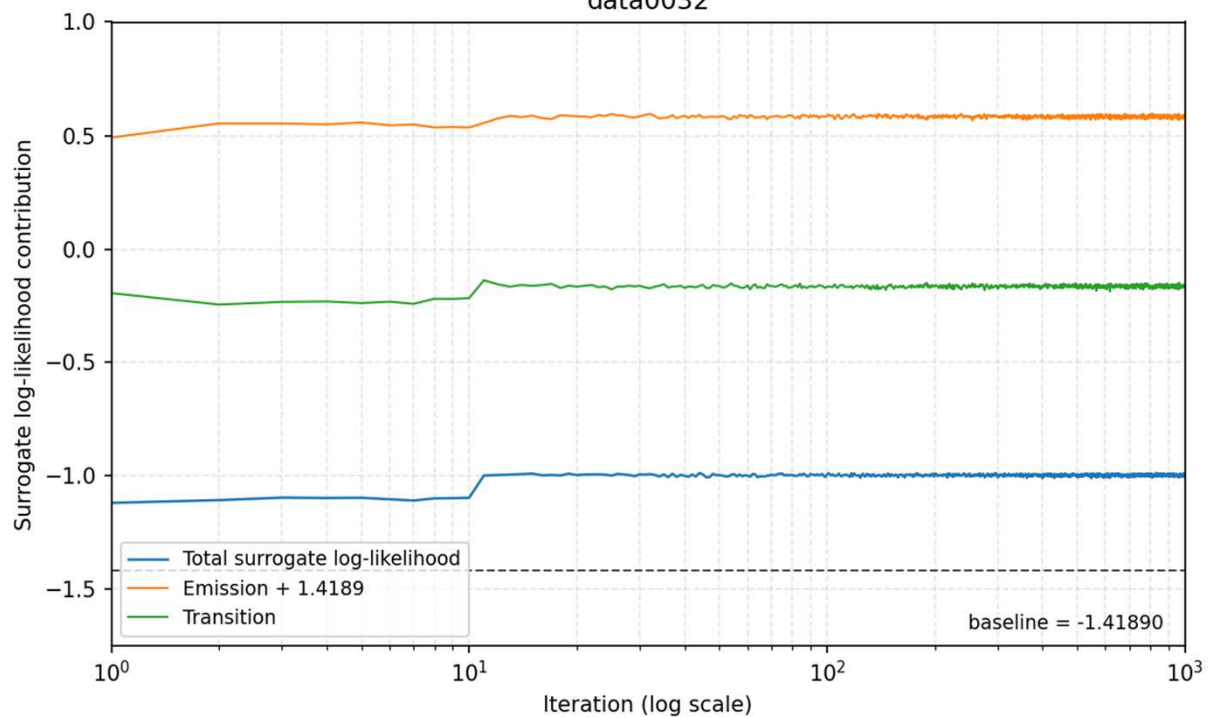
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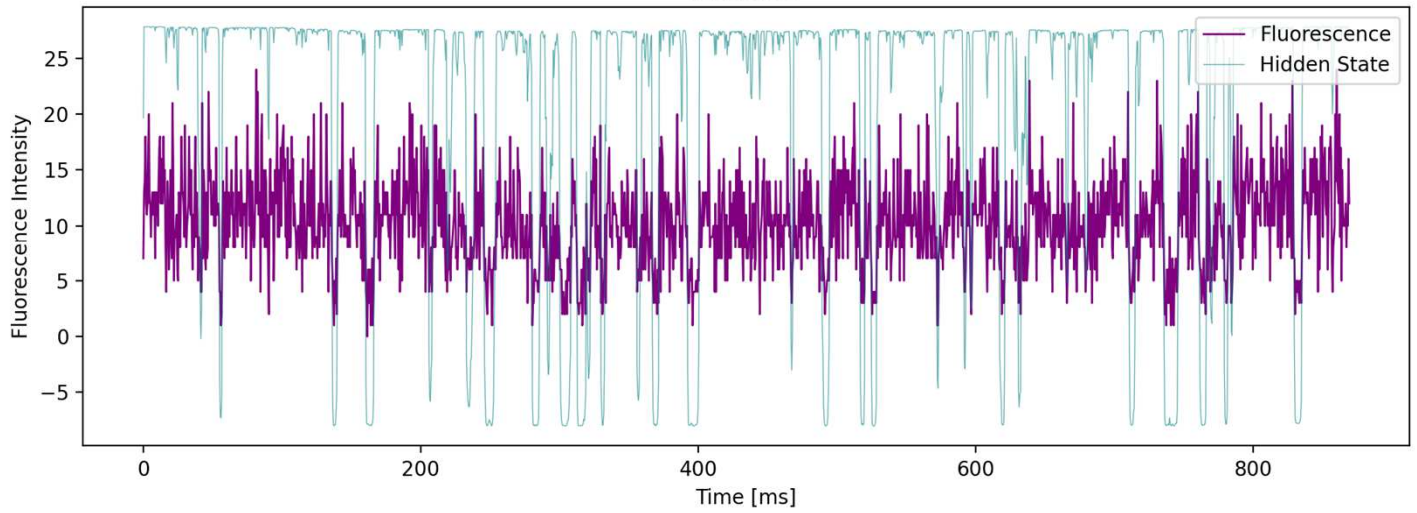
Histogram of Photon Counts (data0032.csv)



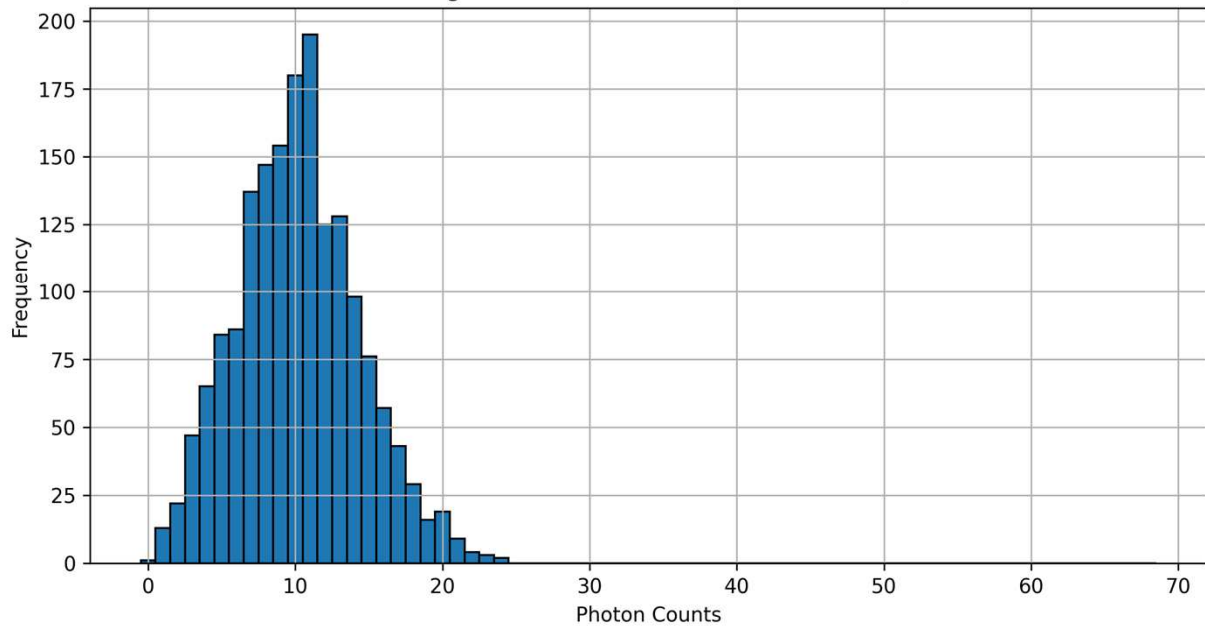
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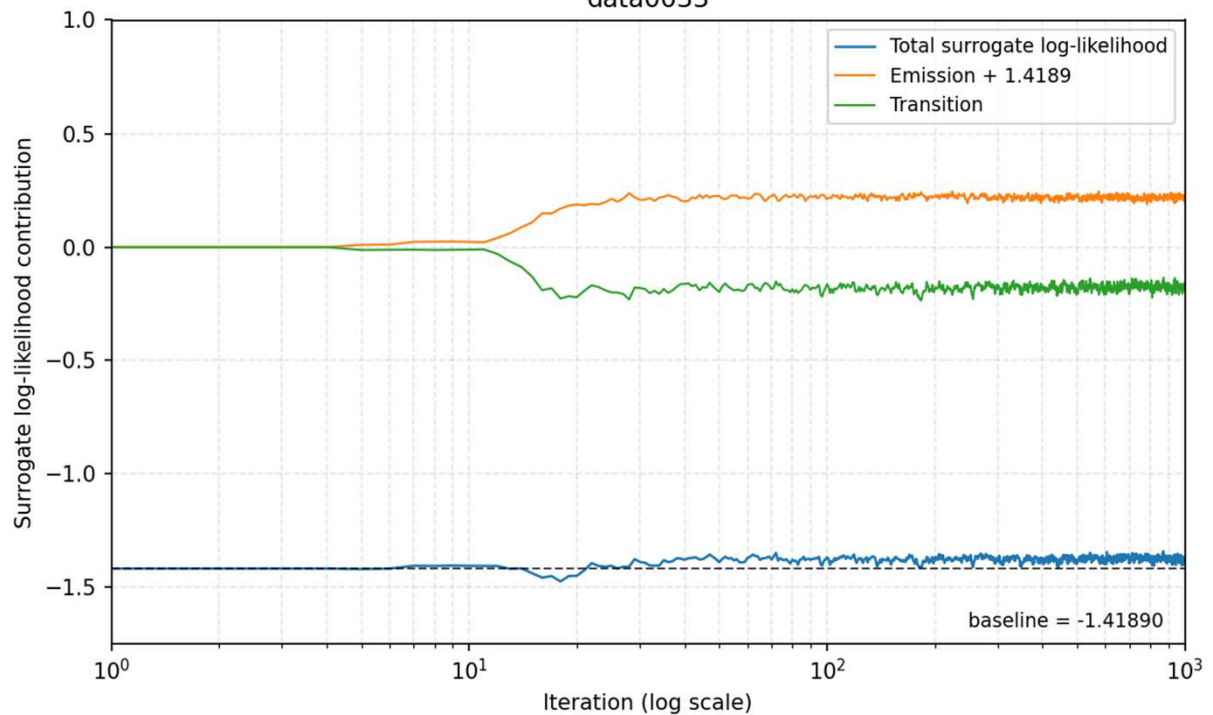
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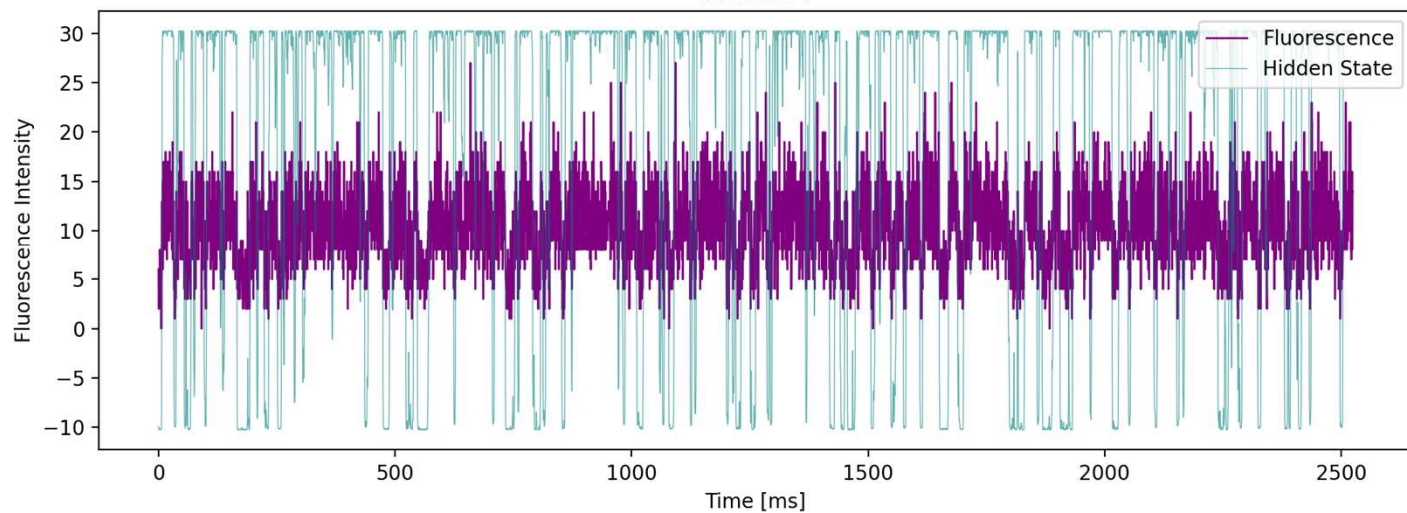
Histogram of Photon Counts (data0033.csv)



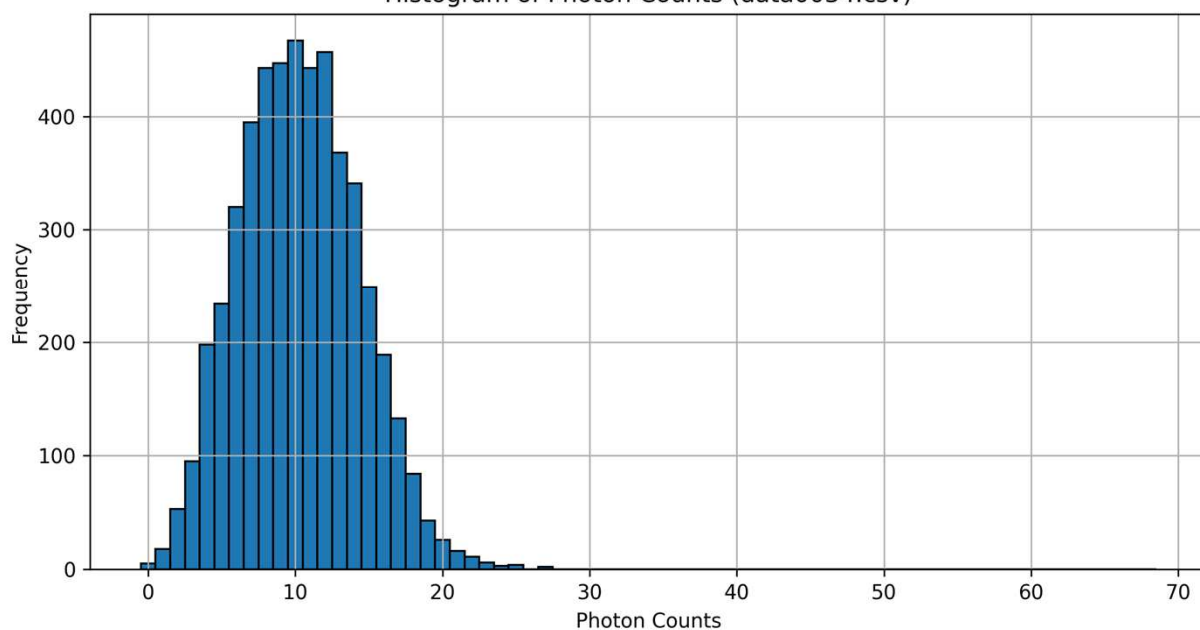
data0033



data0034



Histogram of Photon Counts (data0034.csv)



data0034

