

HiDim KDE

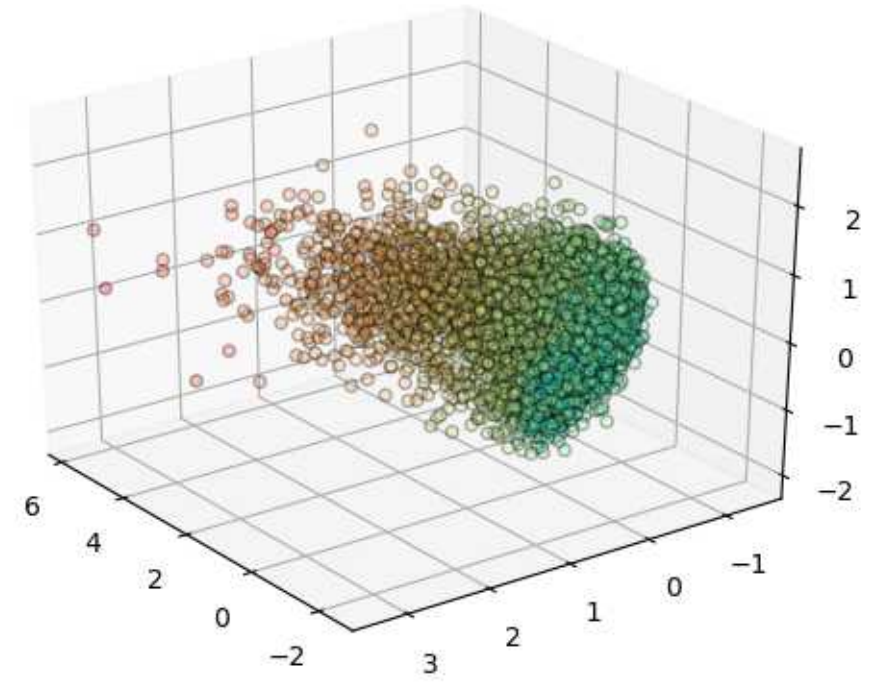
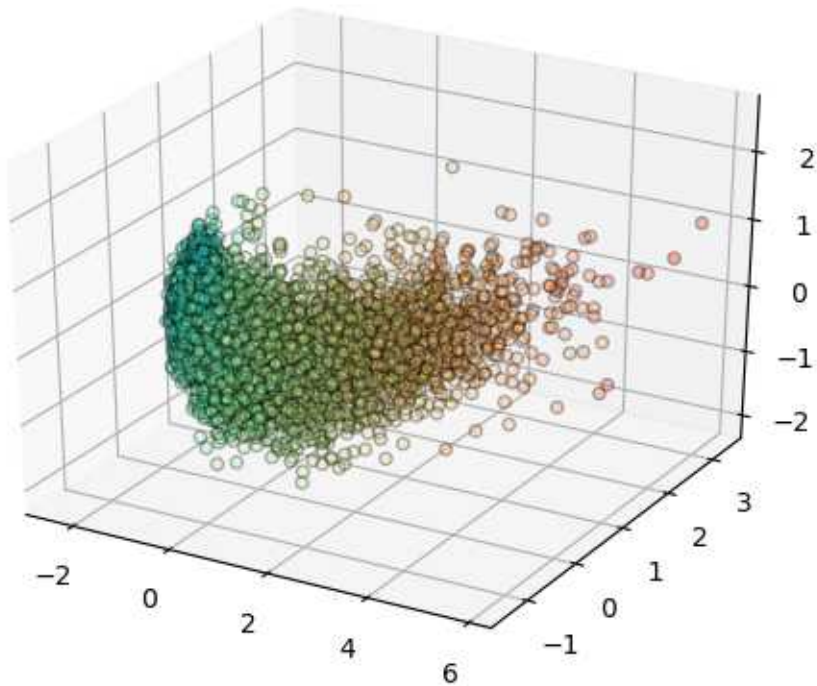
HiDimKDE

- Question: what is a good bandwidth for high-dimensional kernel density estimation?

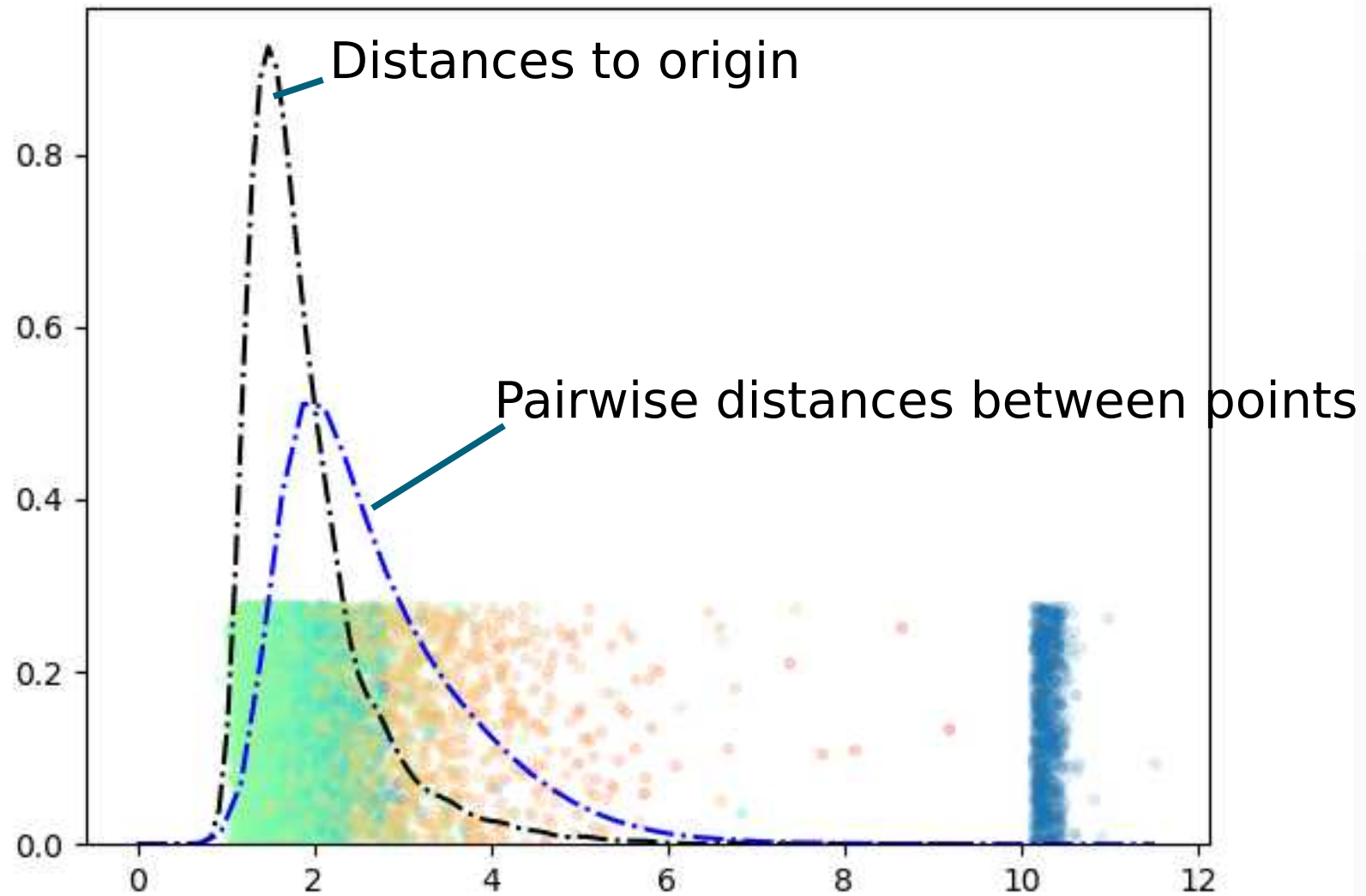
Protein KDE

- Procedure:
 - Compute all pairwise Wasserstein distances
 - Project into R^{25} via MDS
 - Compute ICA directions for embedded data, sort by Anderson-Darling numbers
 - Look at KDEs using various bandwidths:
 - Visualize slices on ICA directions plus 4 special directions
 - Compute heights of KDEs at each data point, and then compute the Coefficient of Variation for each collection of heights

MDS projection

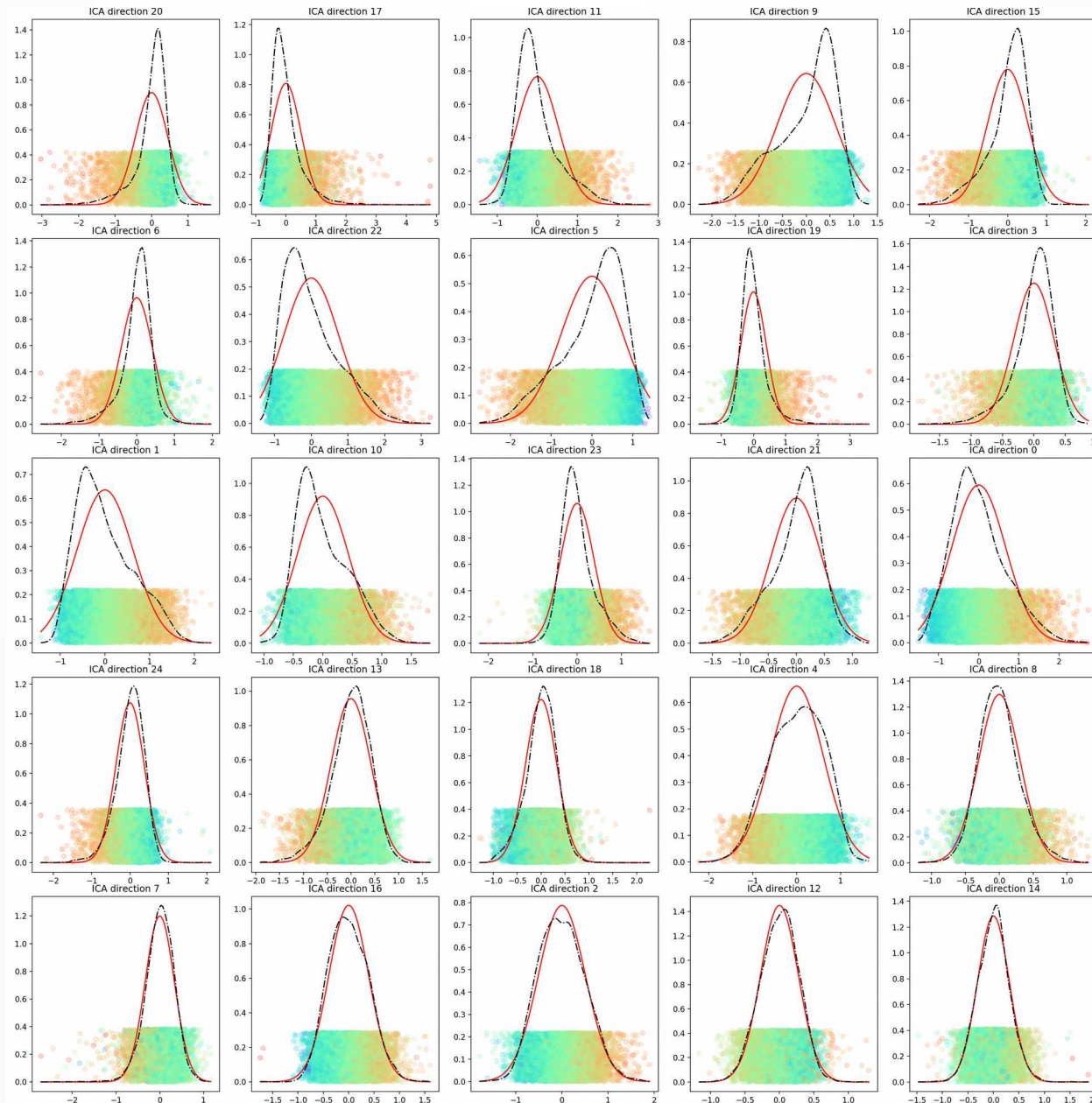


Distance summaries

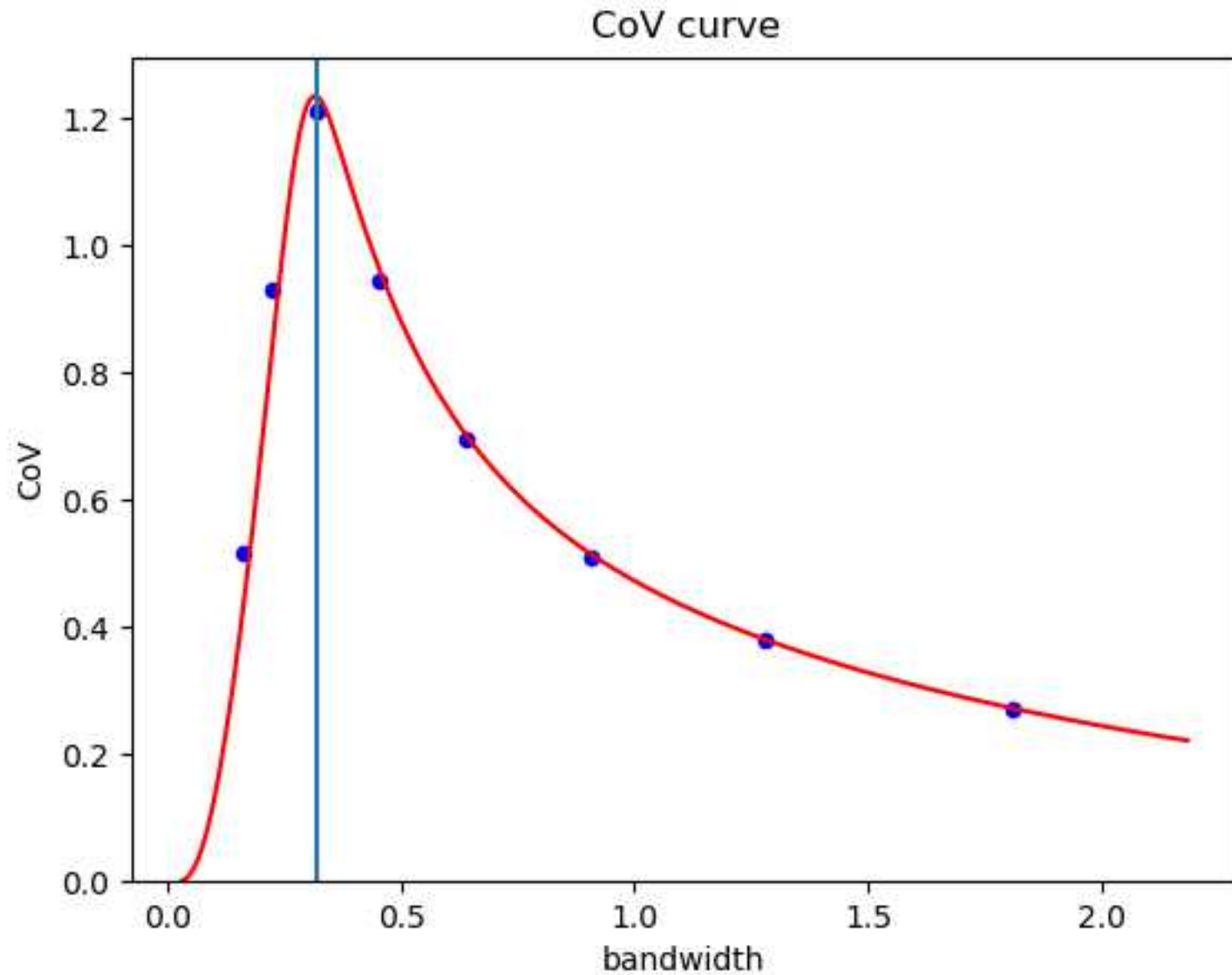


Anderson-Darling numbers

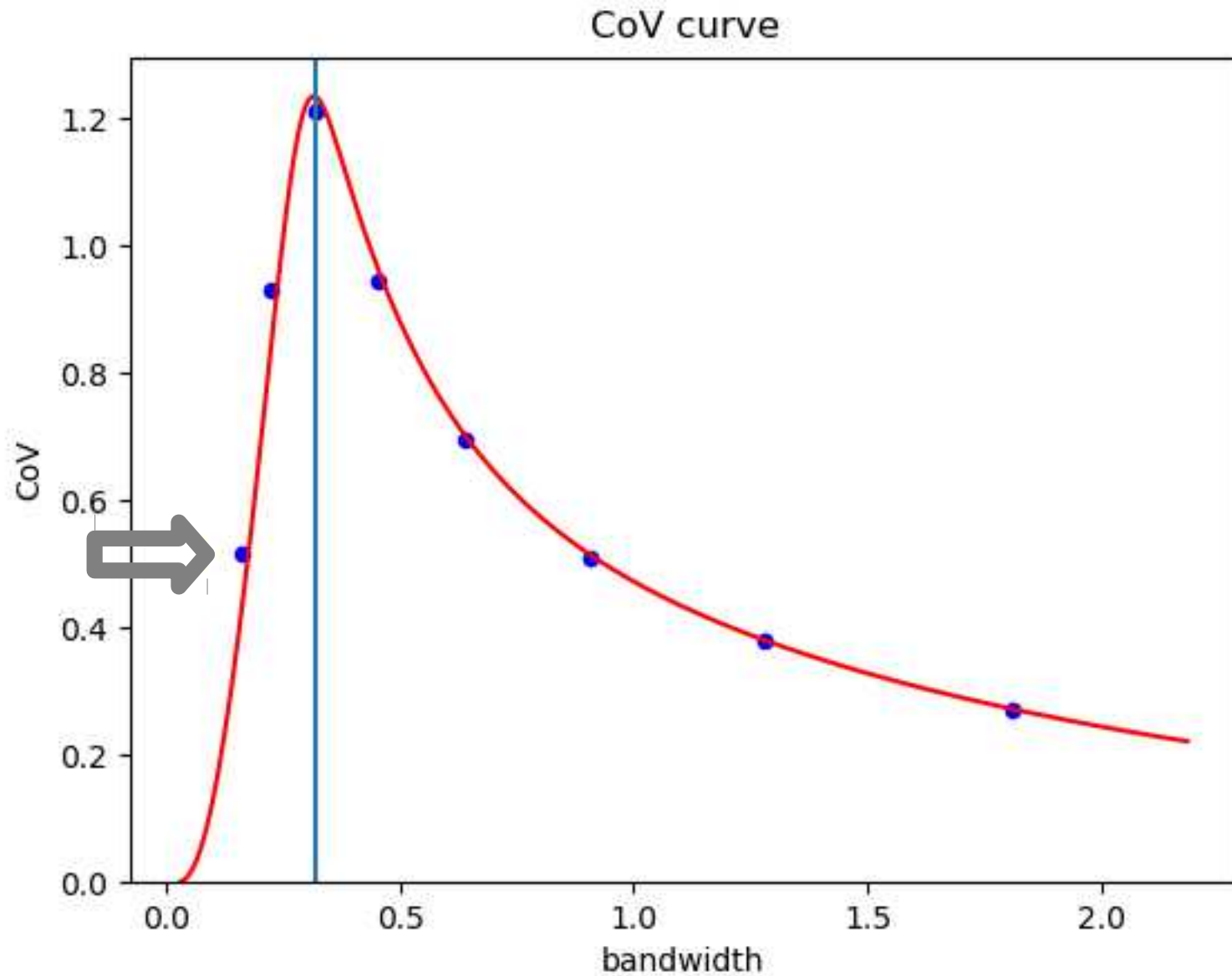
Projections of PCA
coords onto ICA
directions, sorted by
A-D numbers



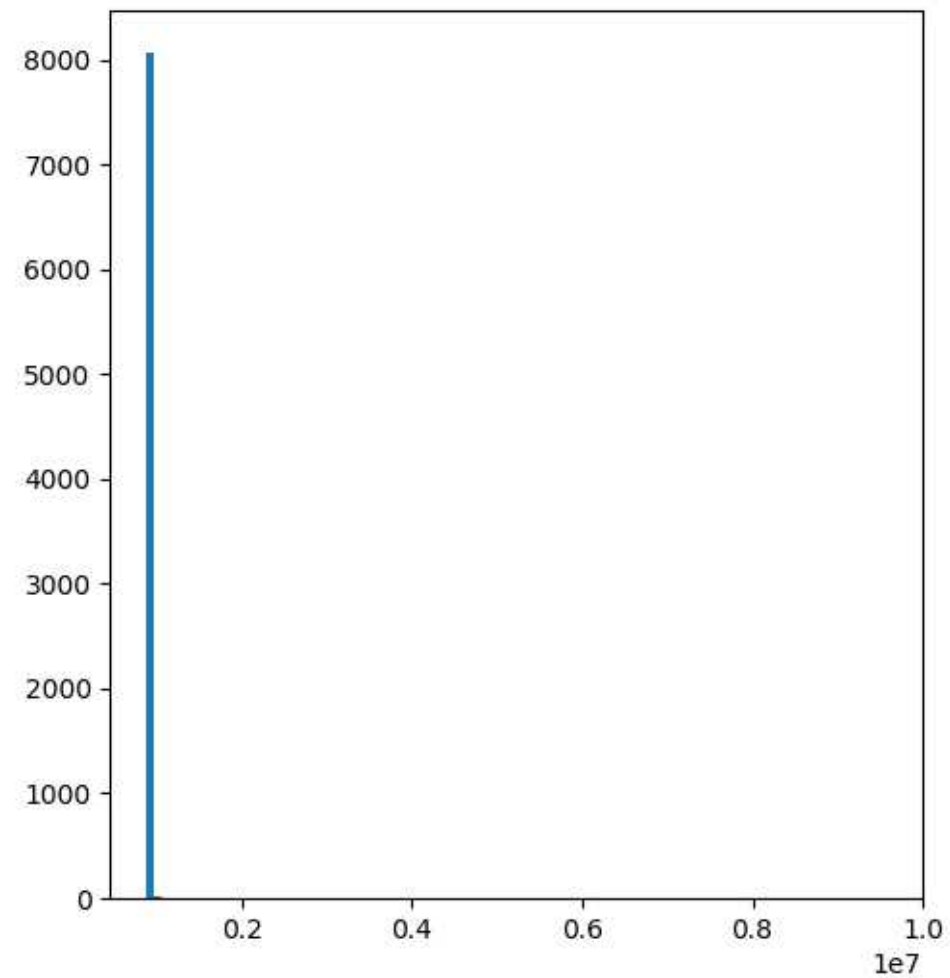
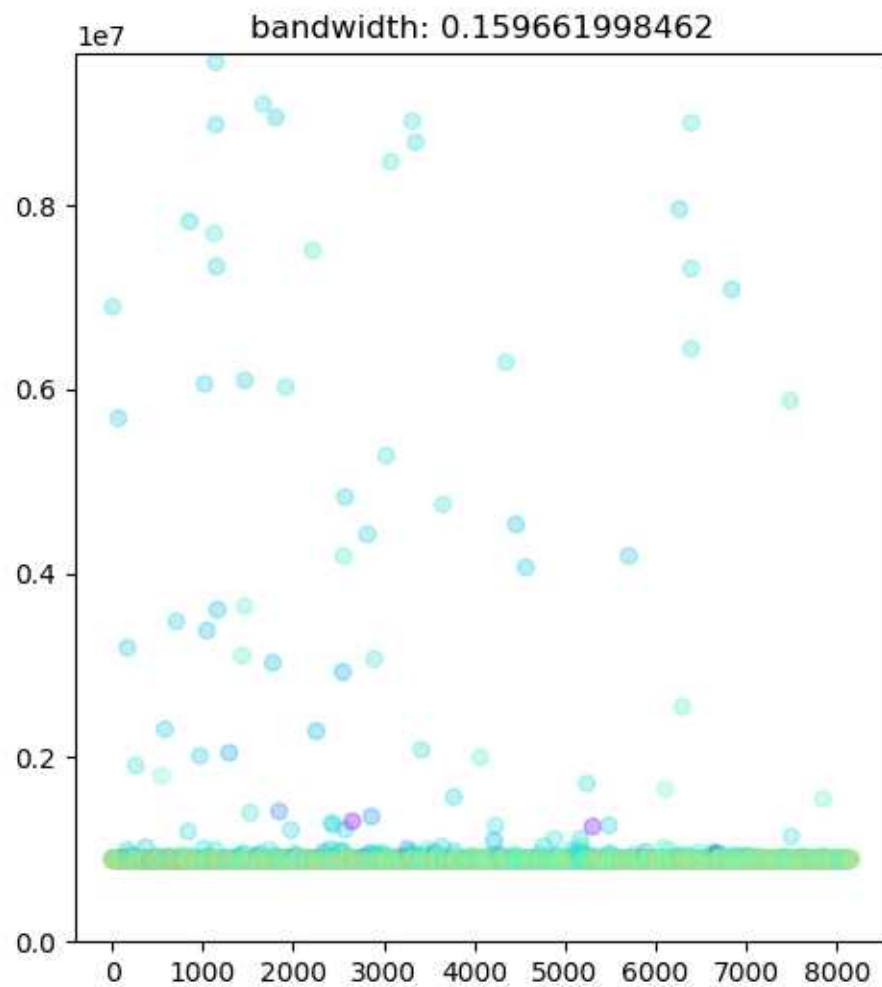
Coefficient of Variation Curve



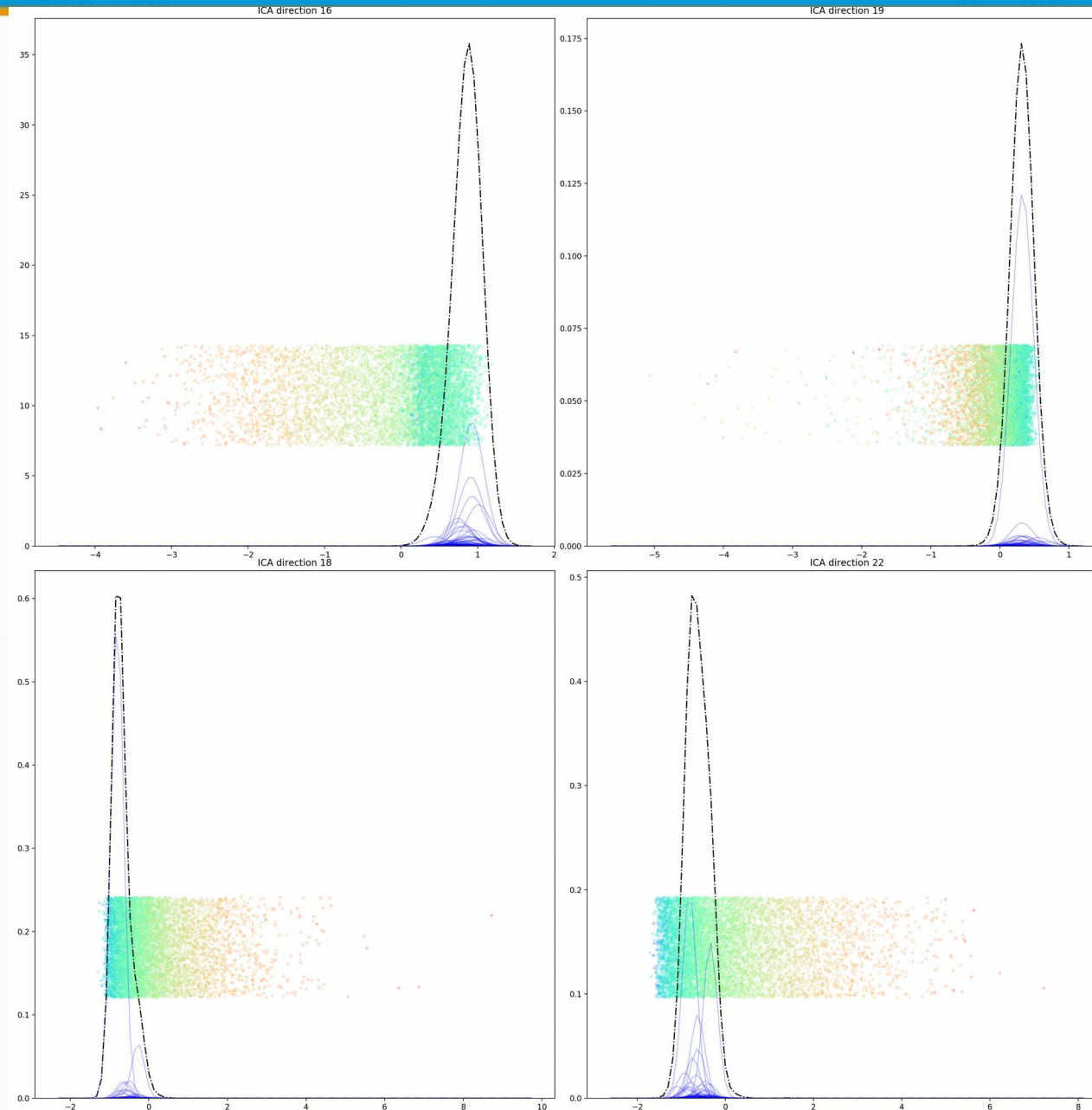
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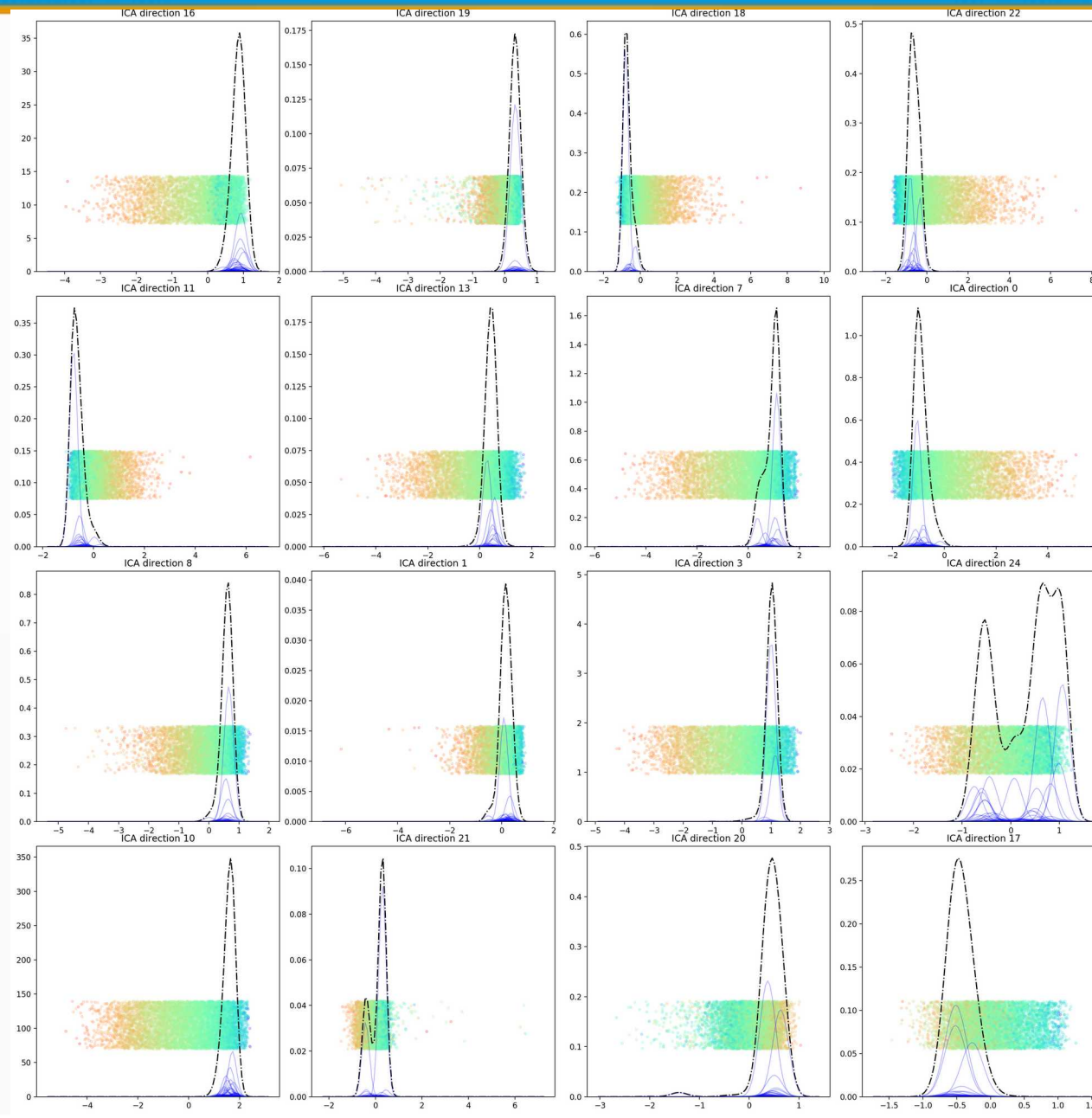
Bandwidth: 0.159, KDE heights



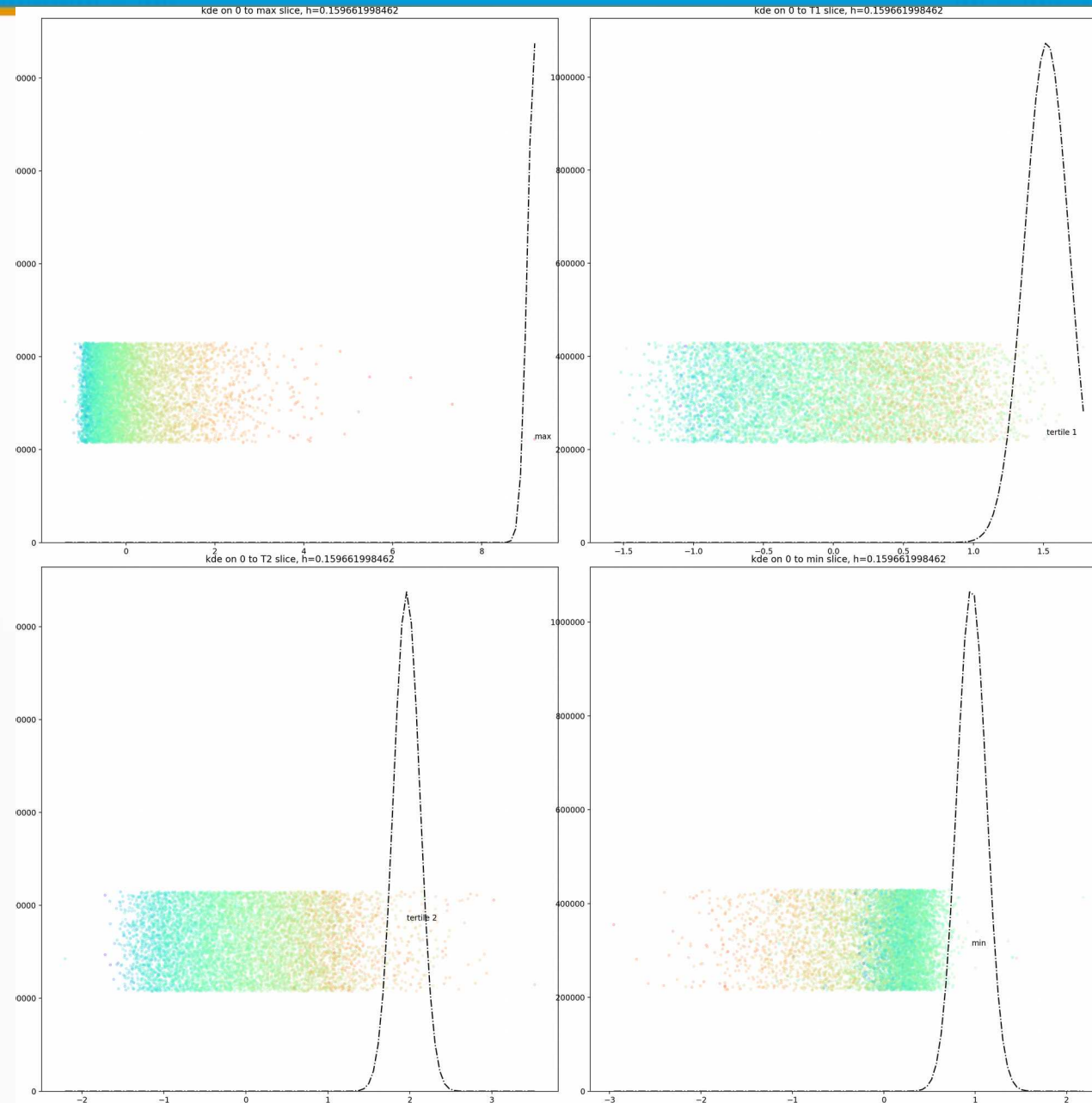
Bandwidth: 0.159, ICA projections



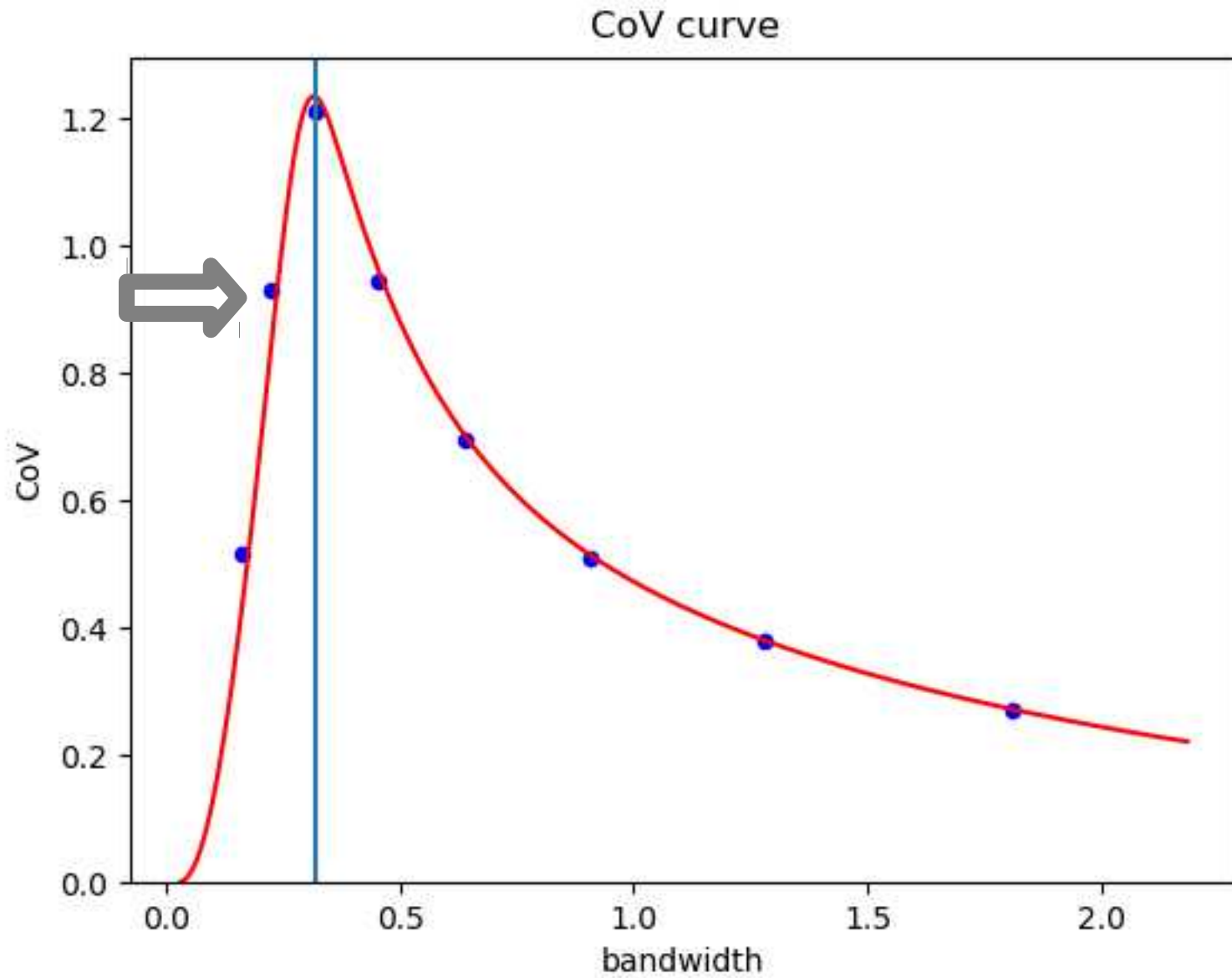
Bandwidth: 0.159, ICA projections



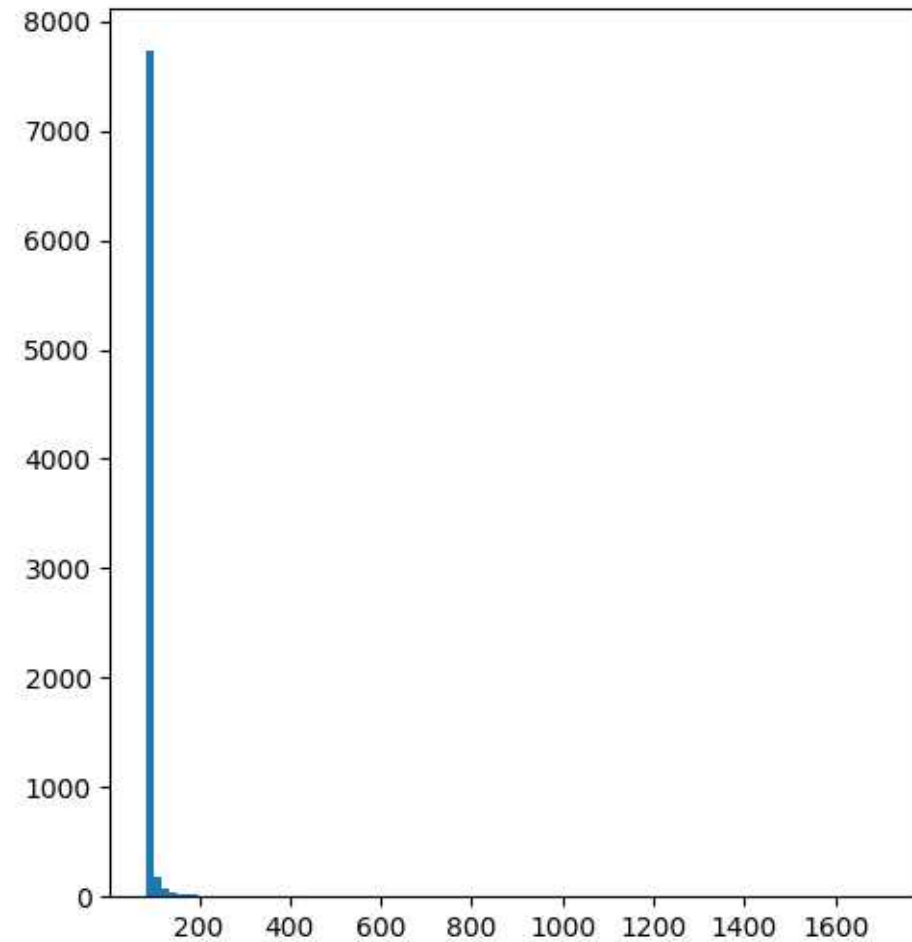
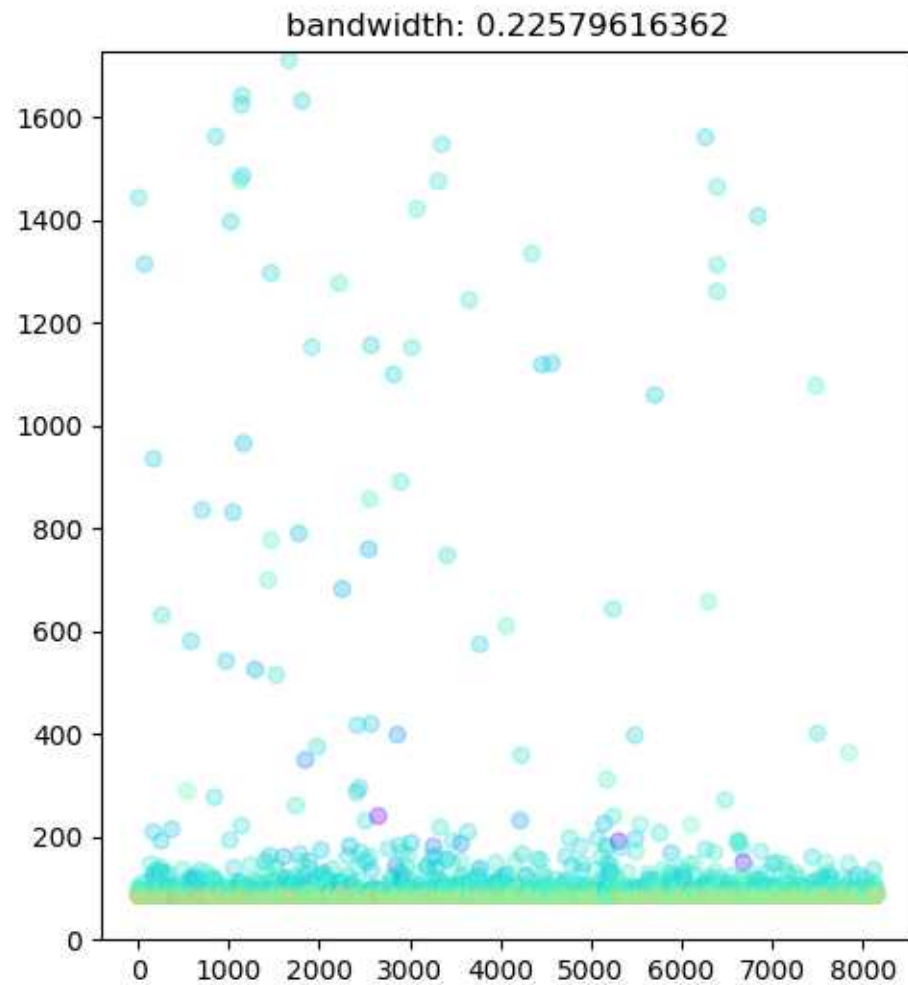
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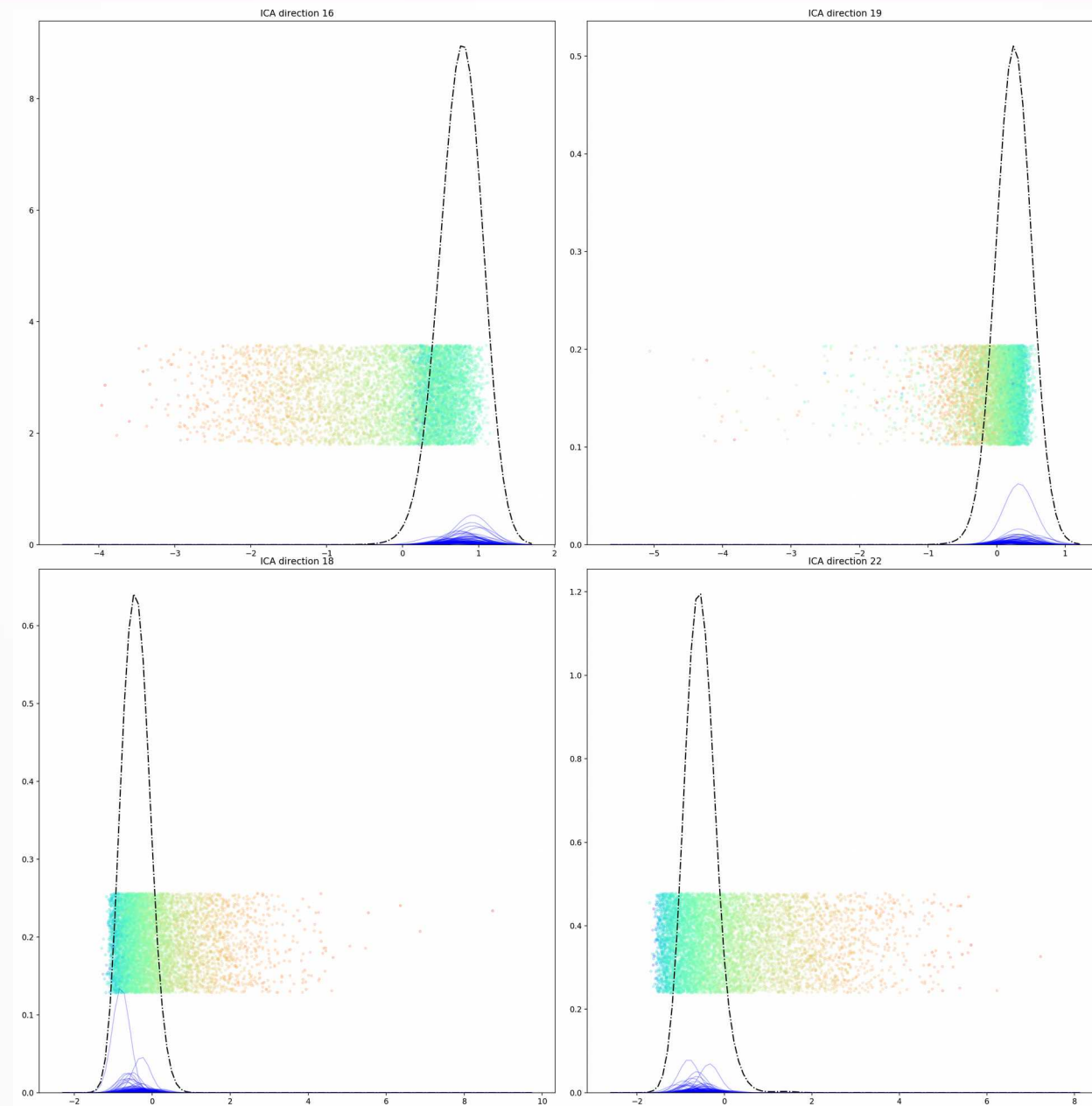
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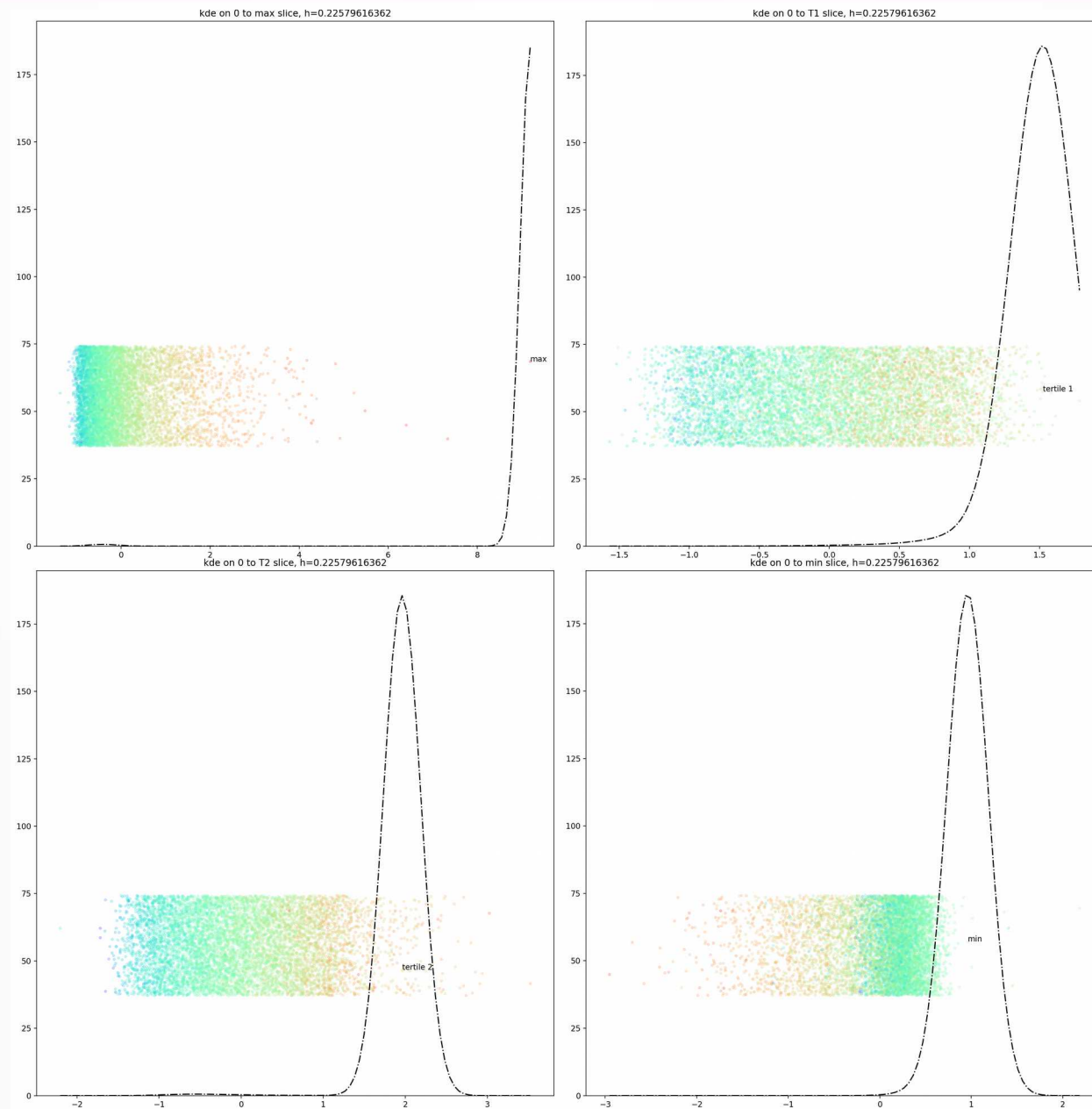
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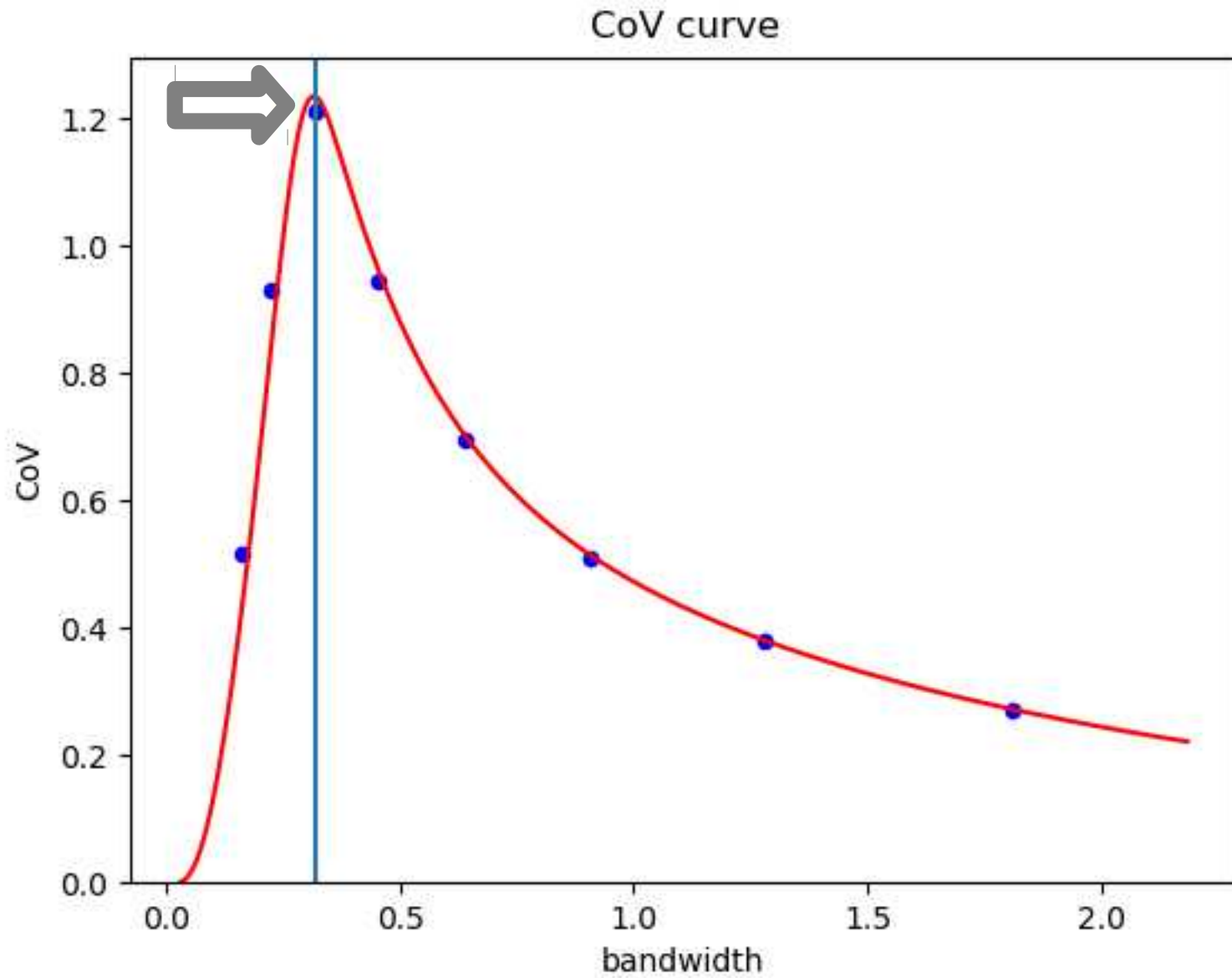
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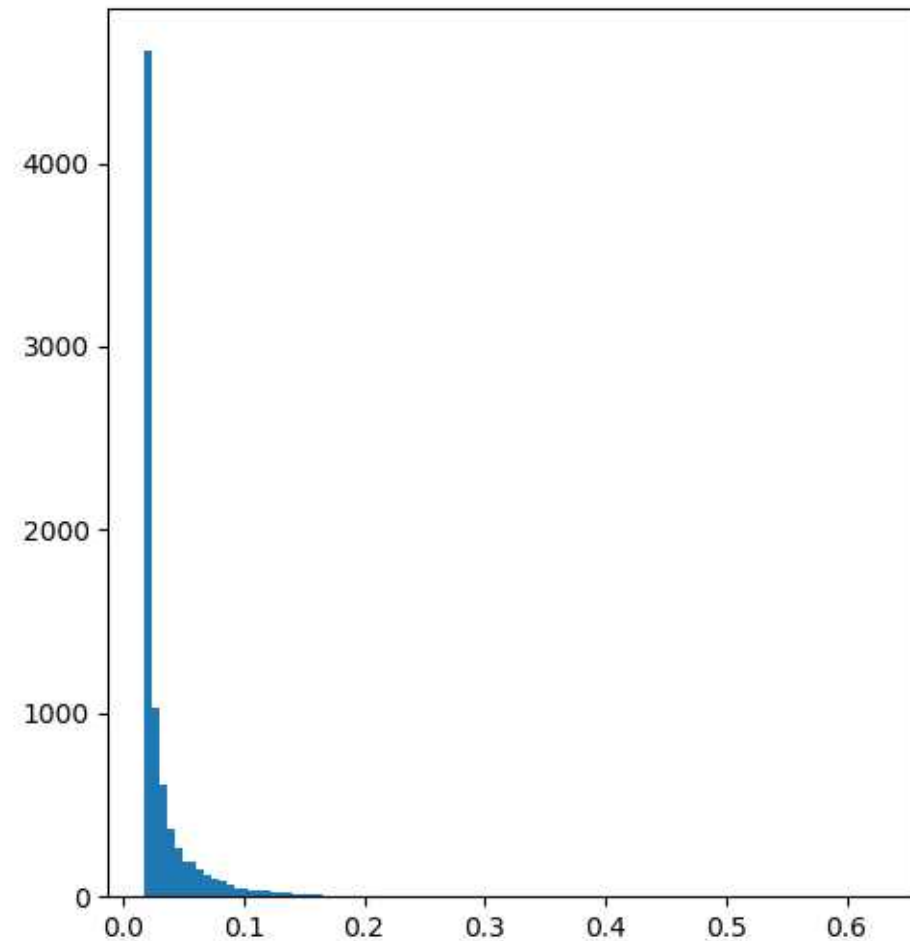
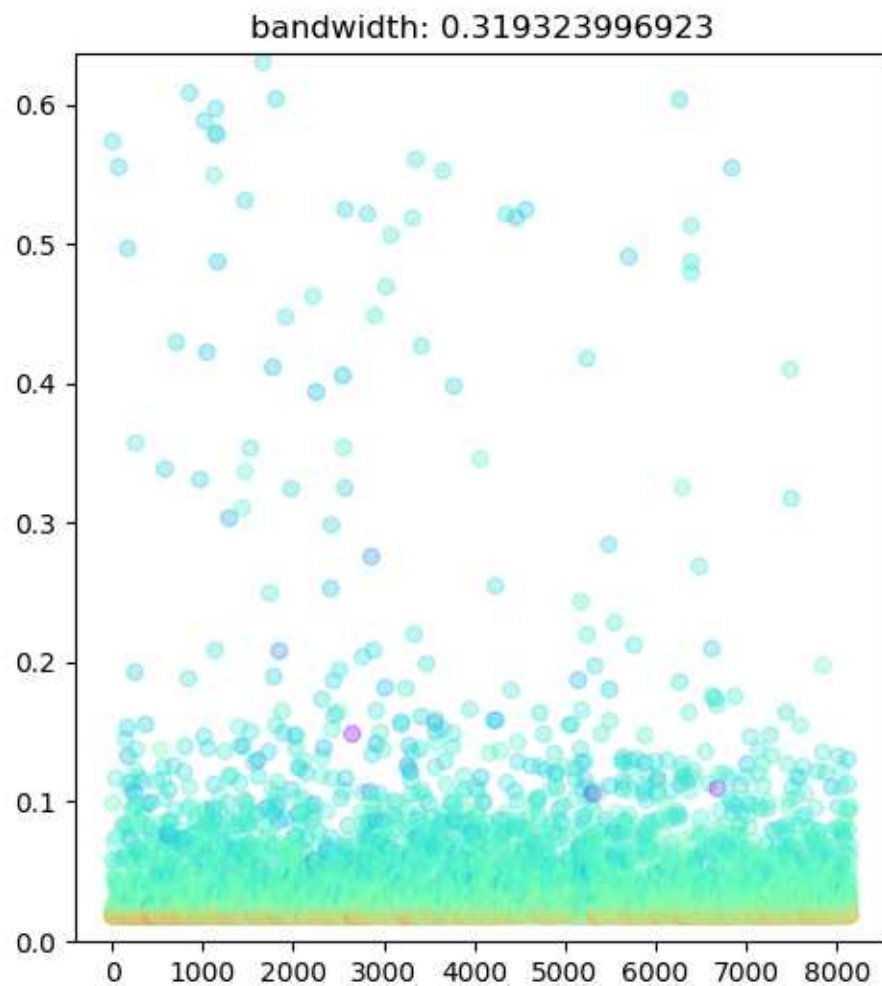
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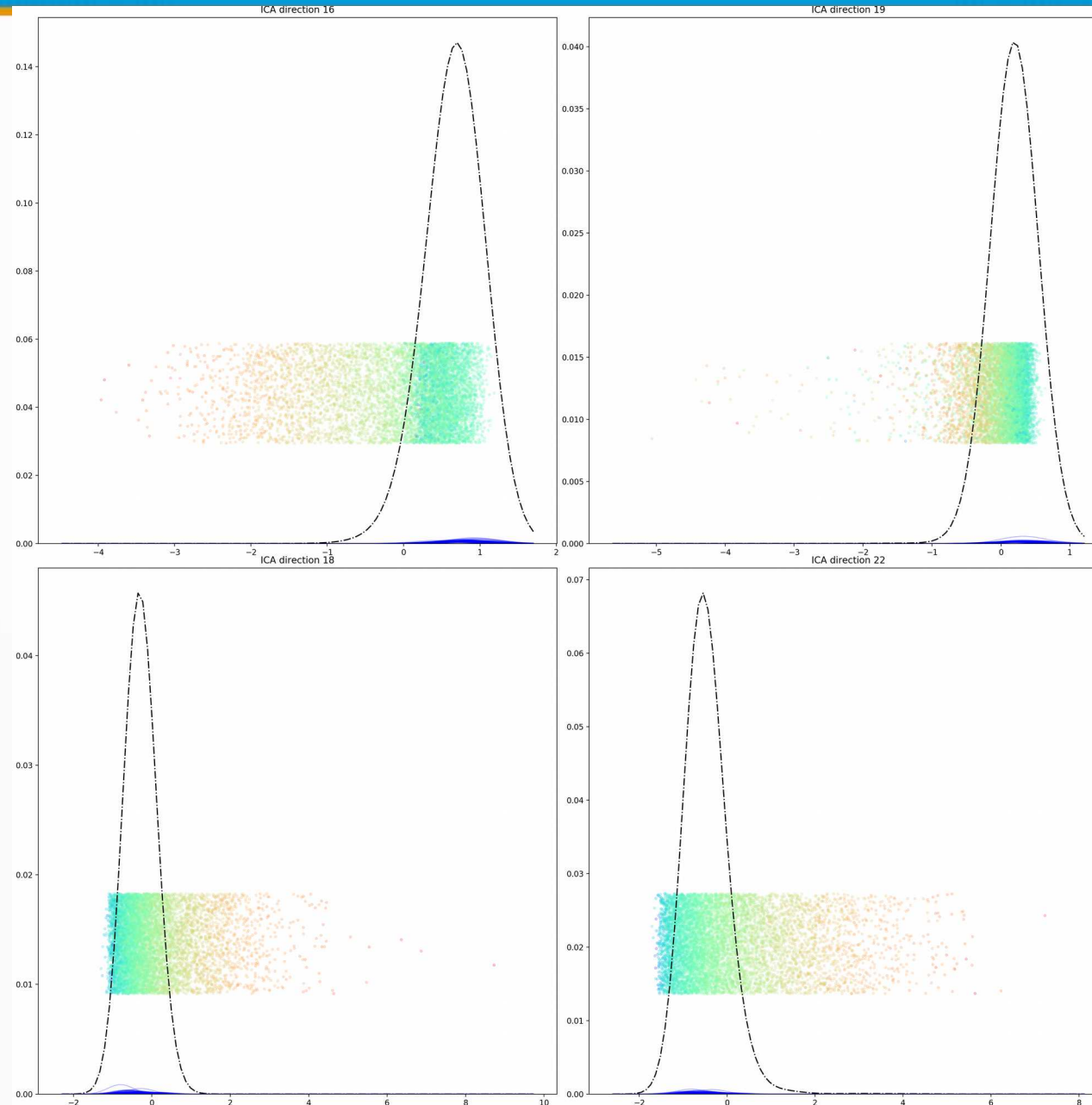
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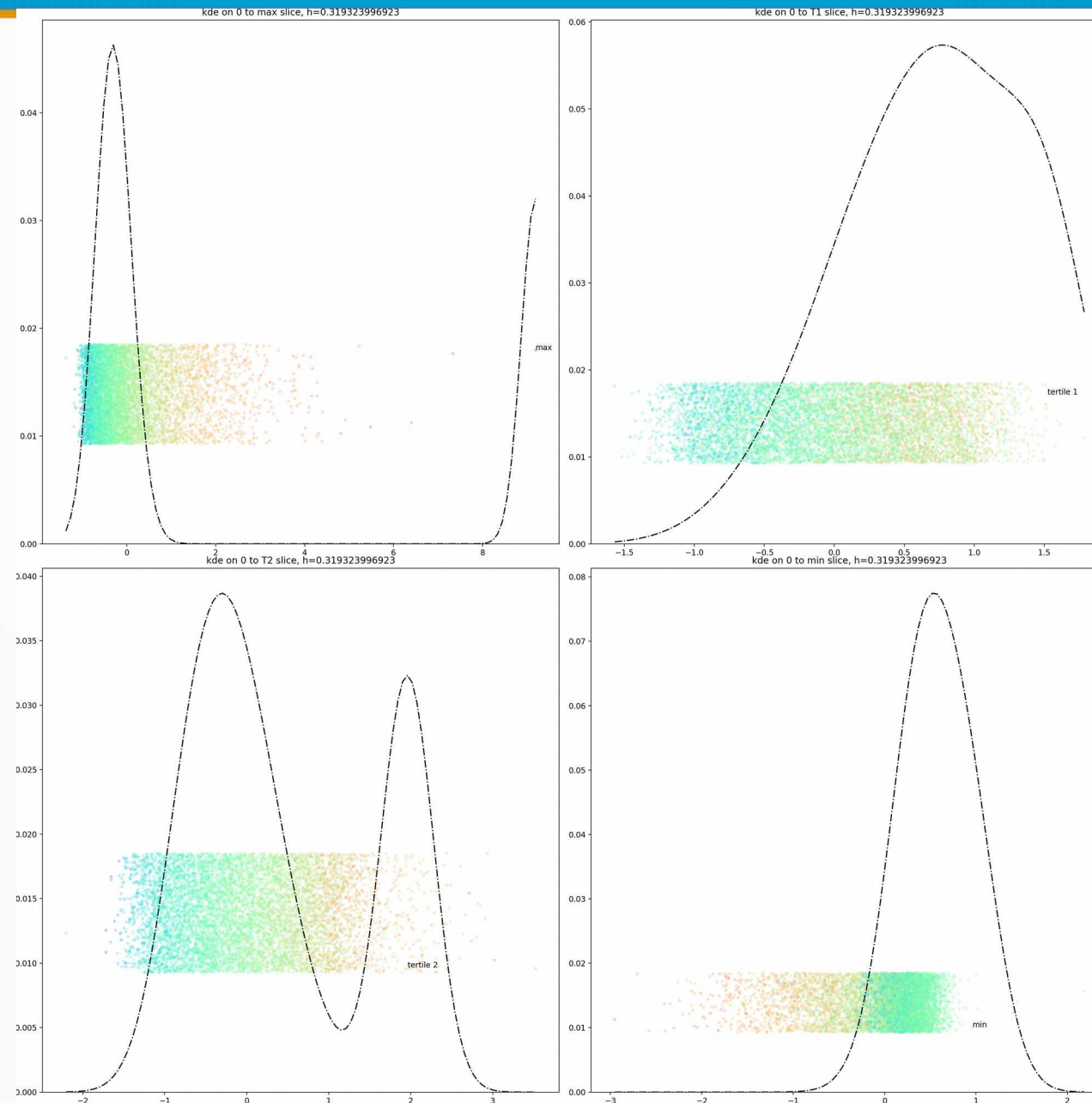
Bandwidth: 0.319, KDE heights



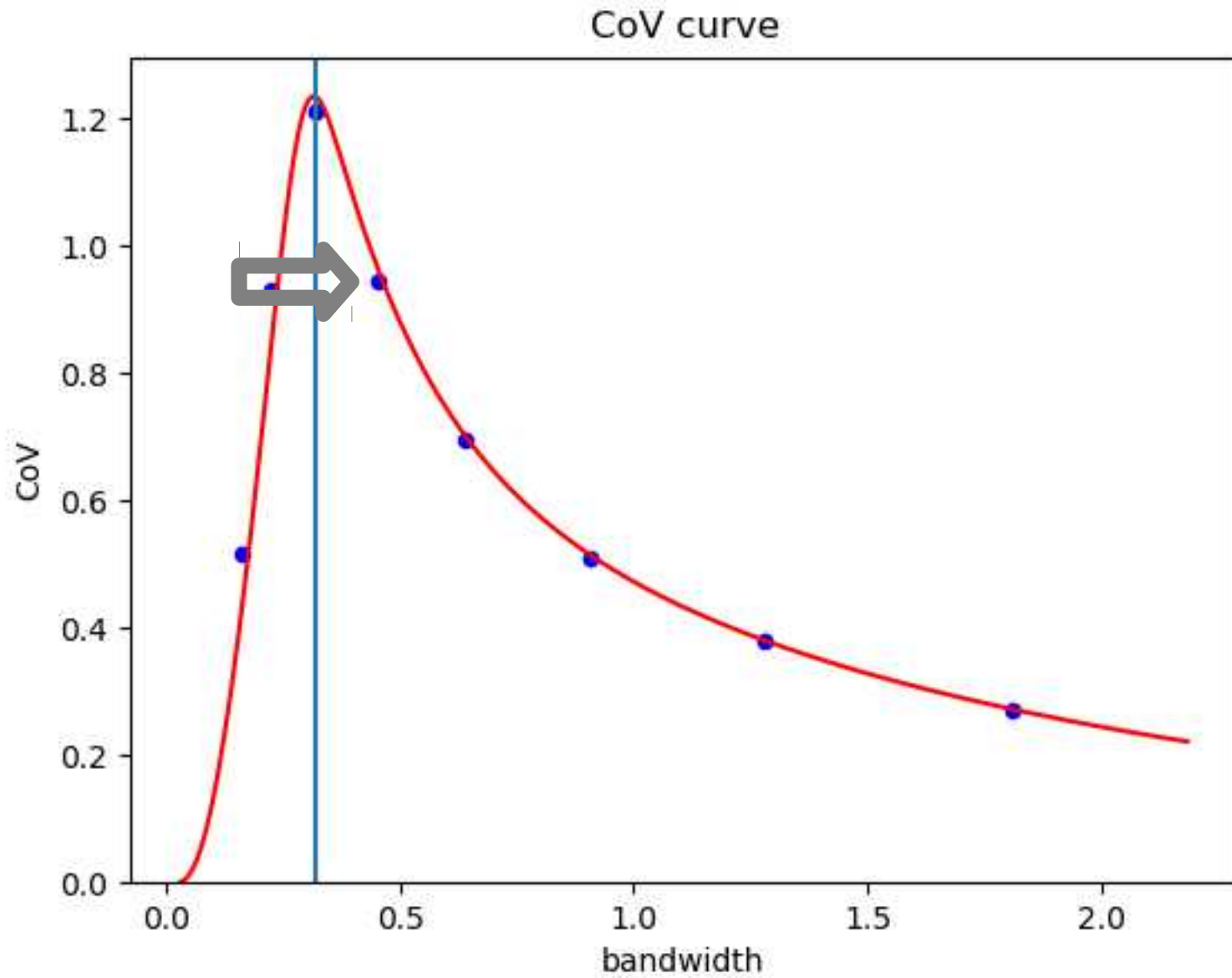
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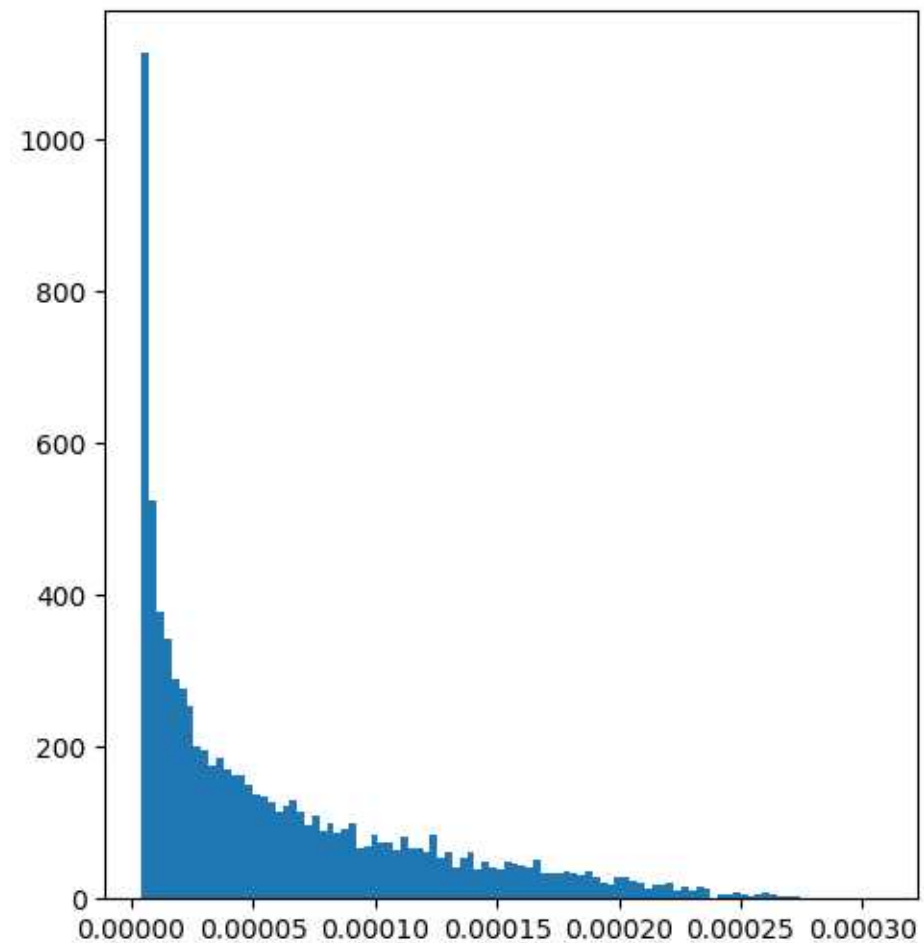
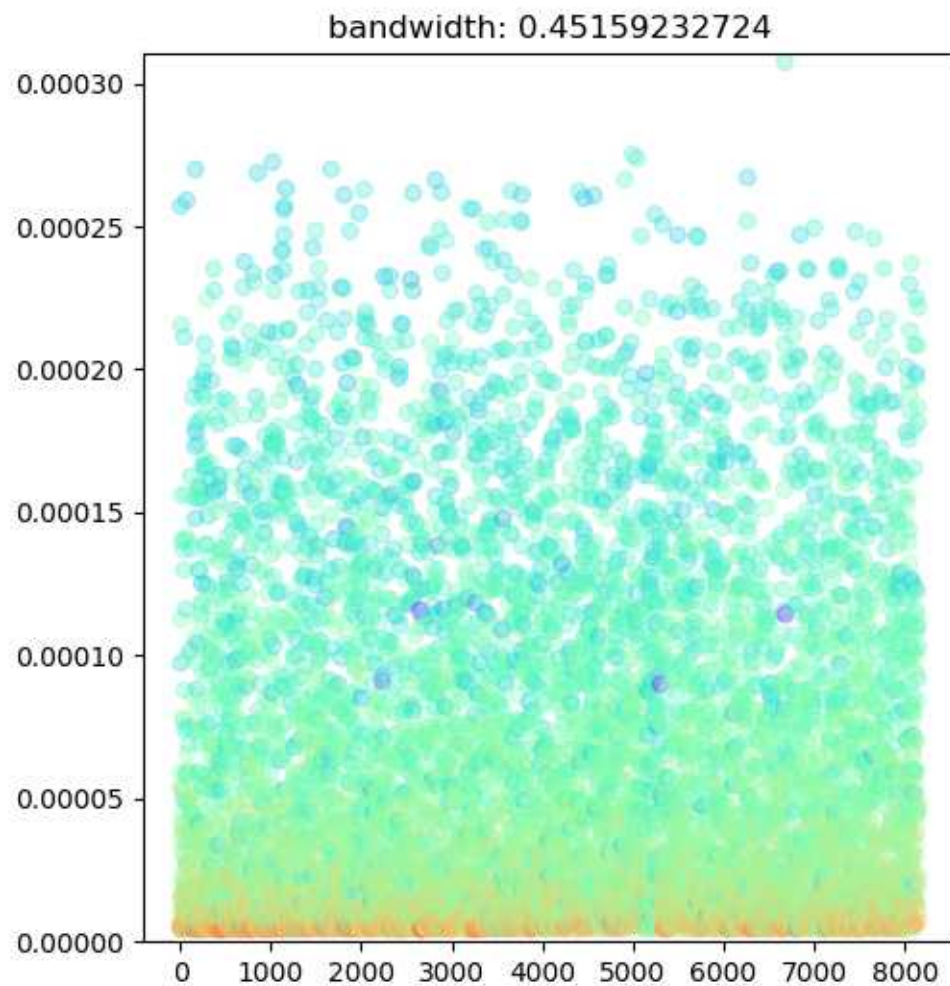
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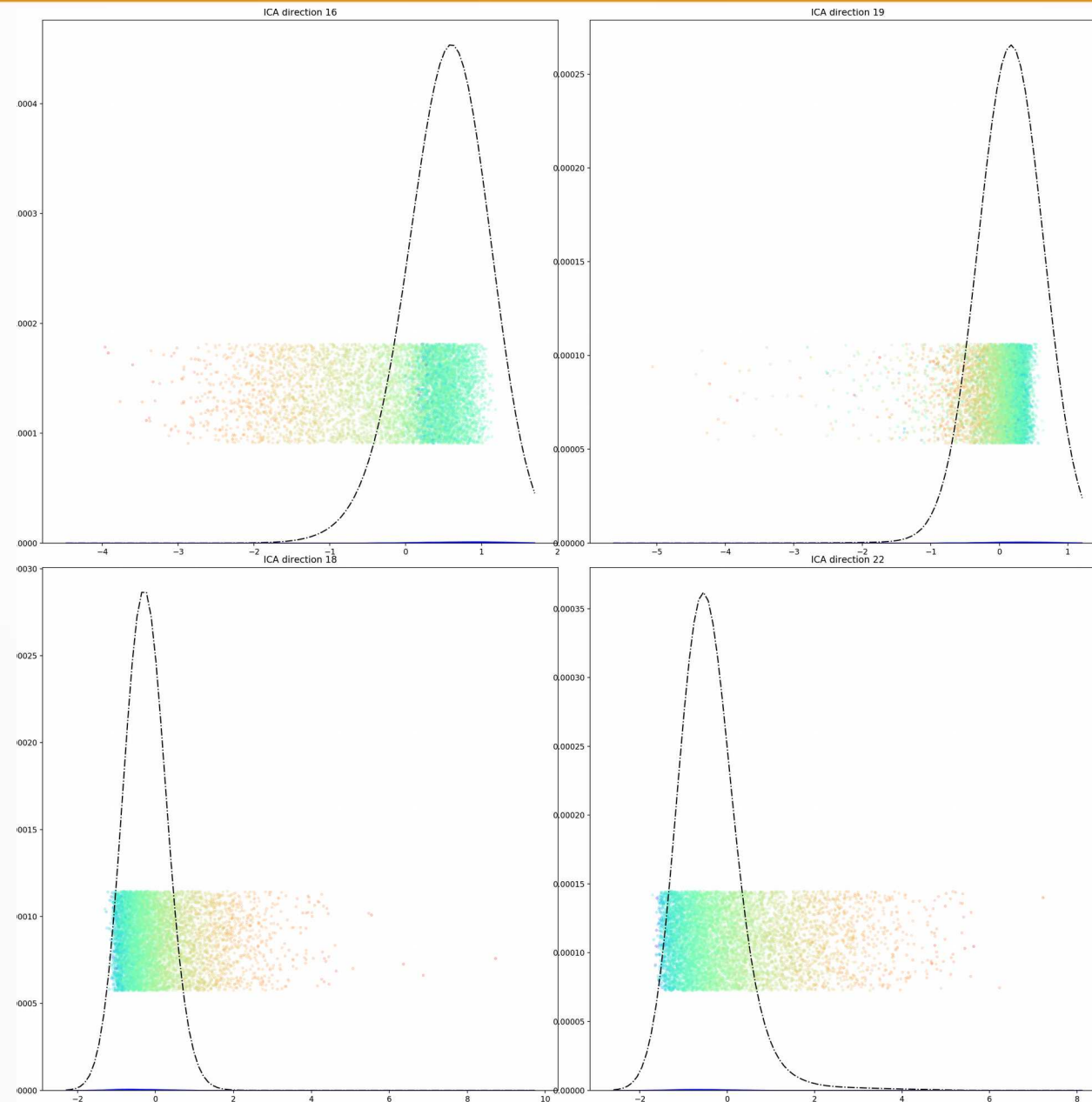
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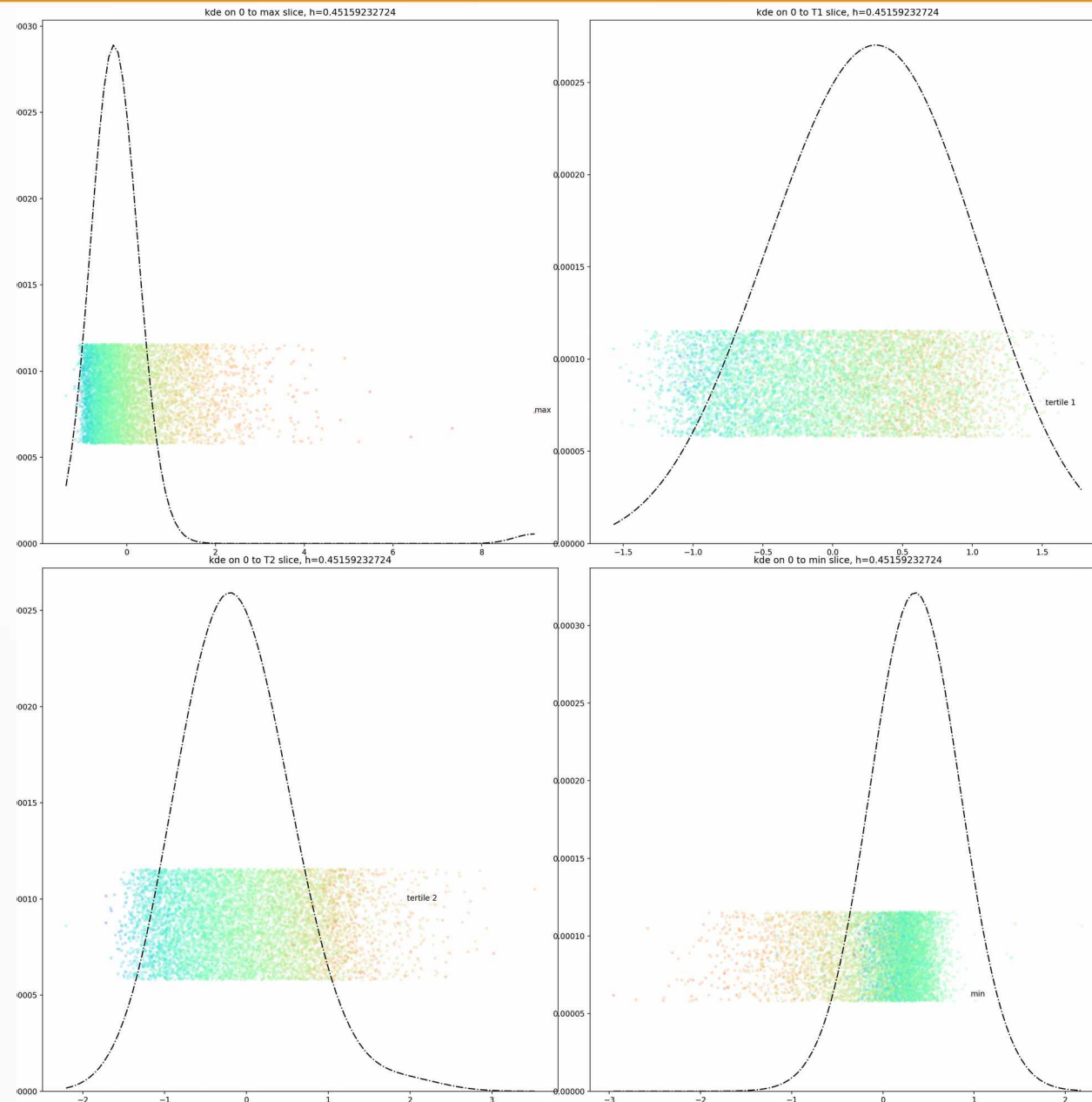
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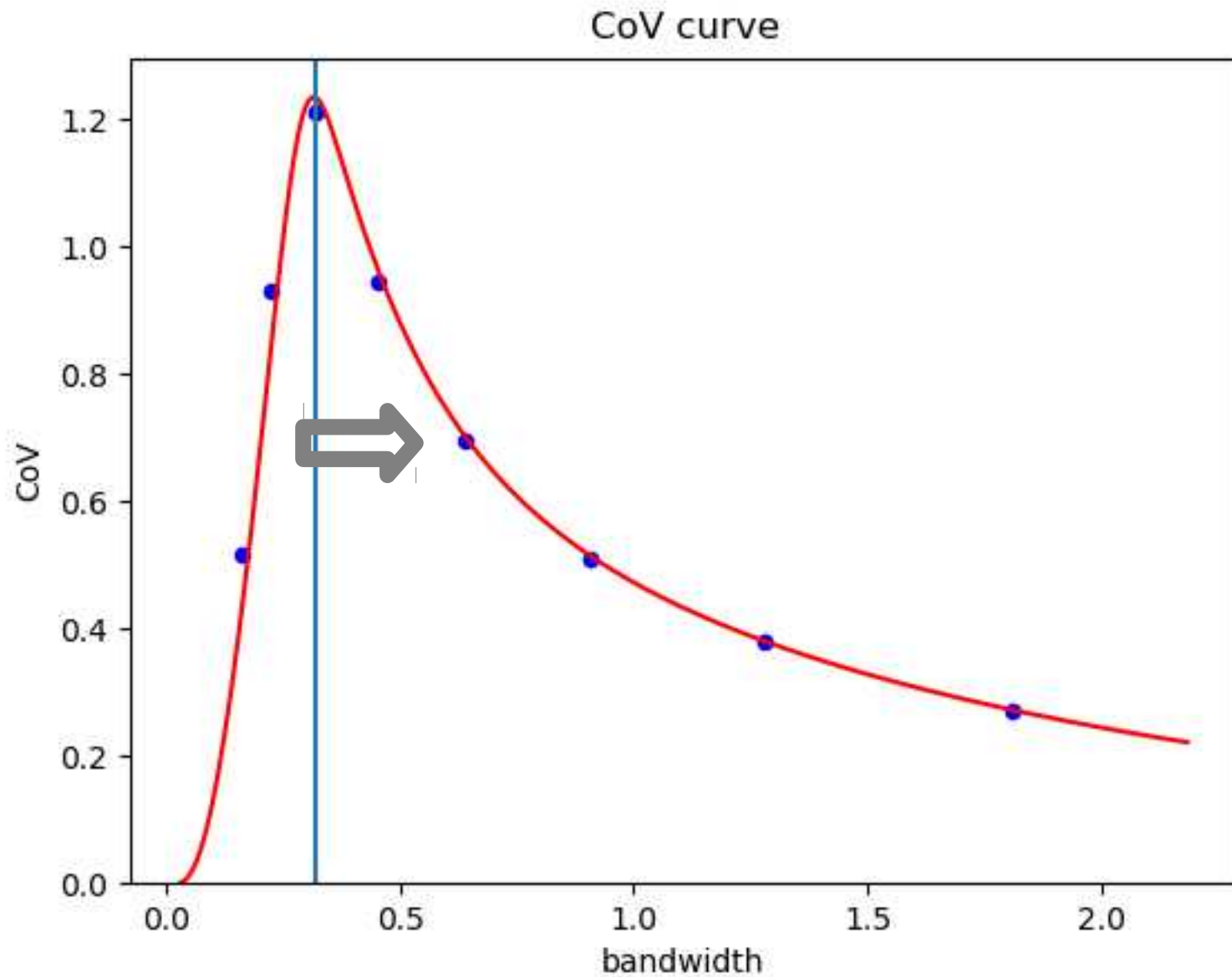
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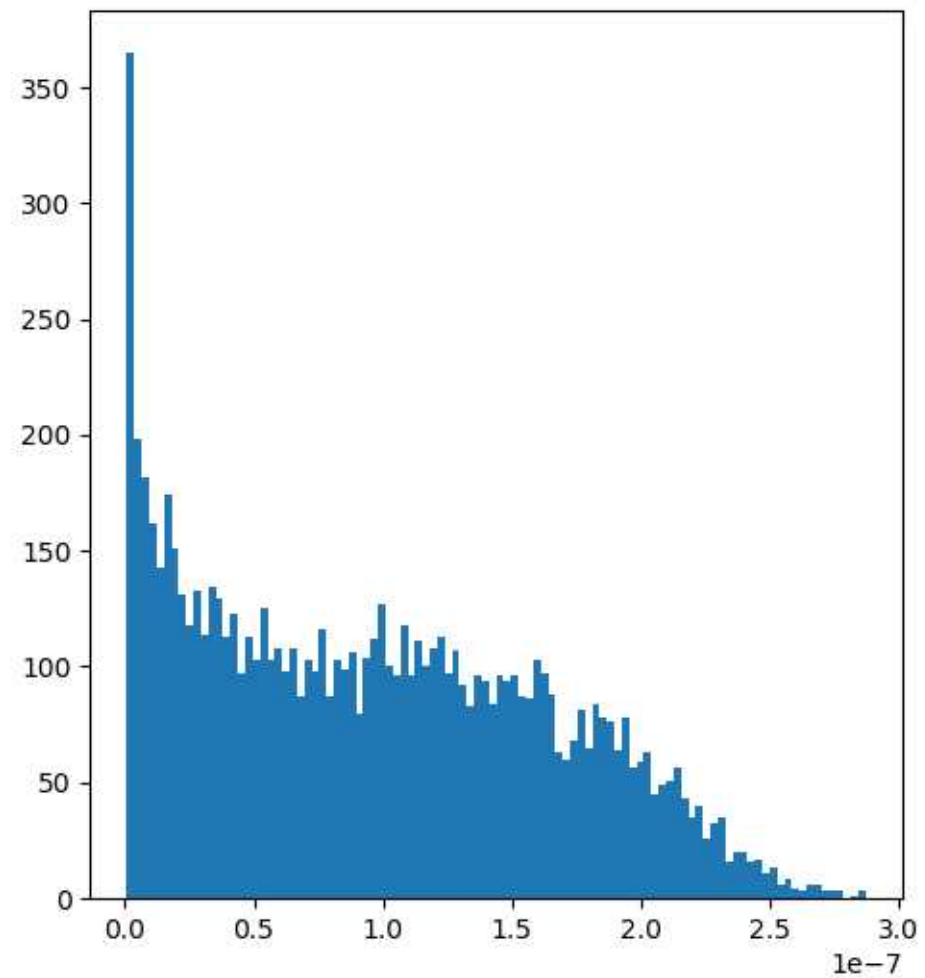
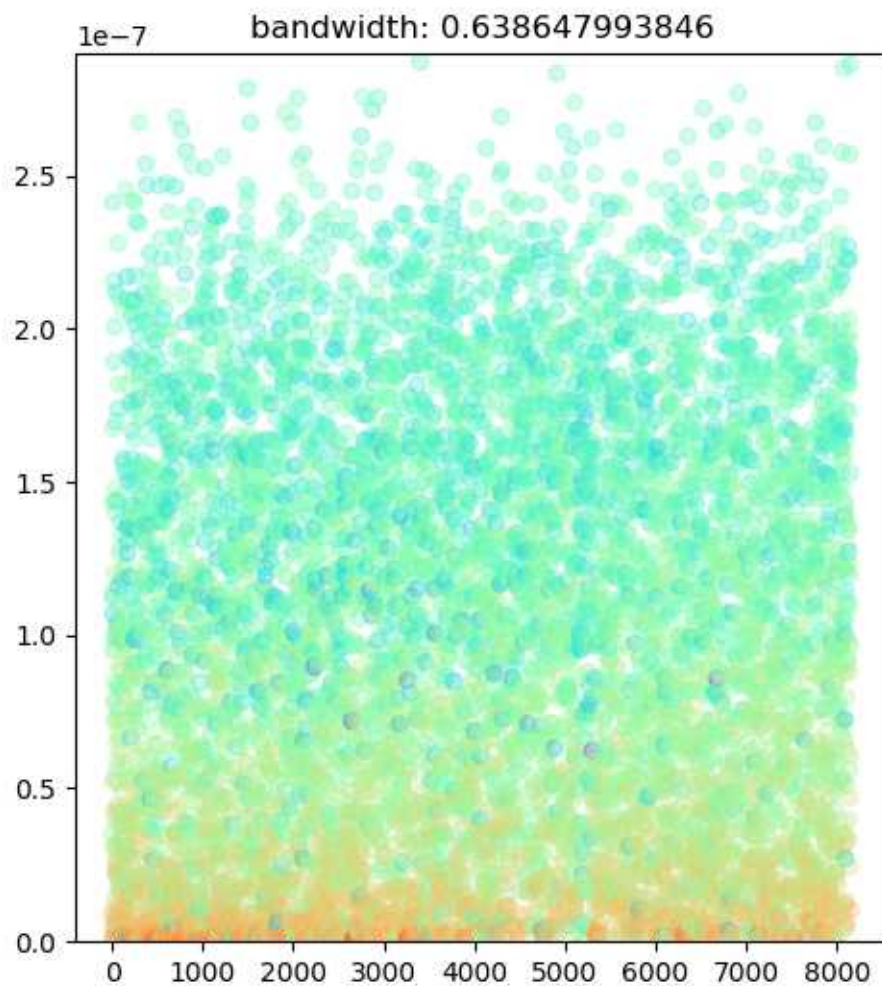
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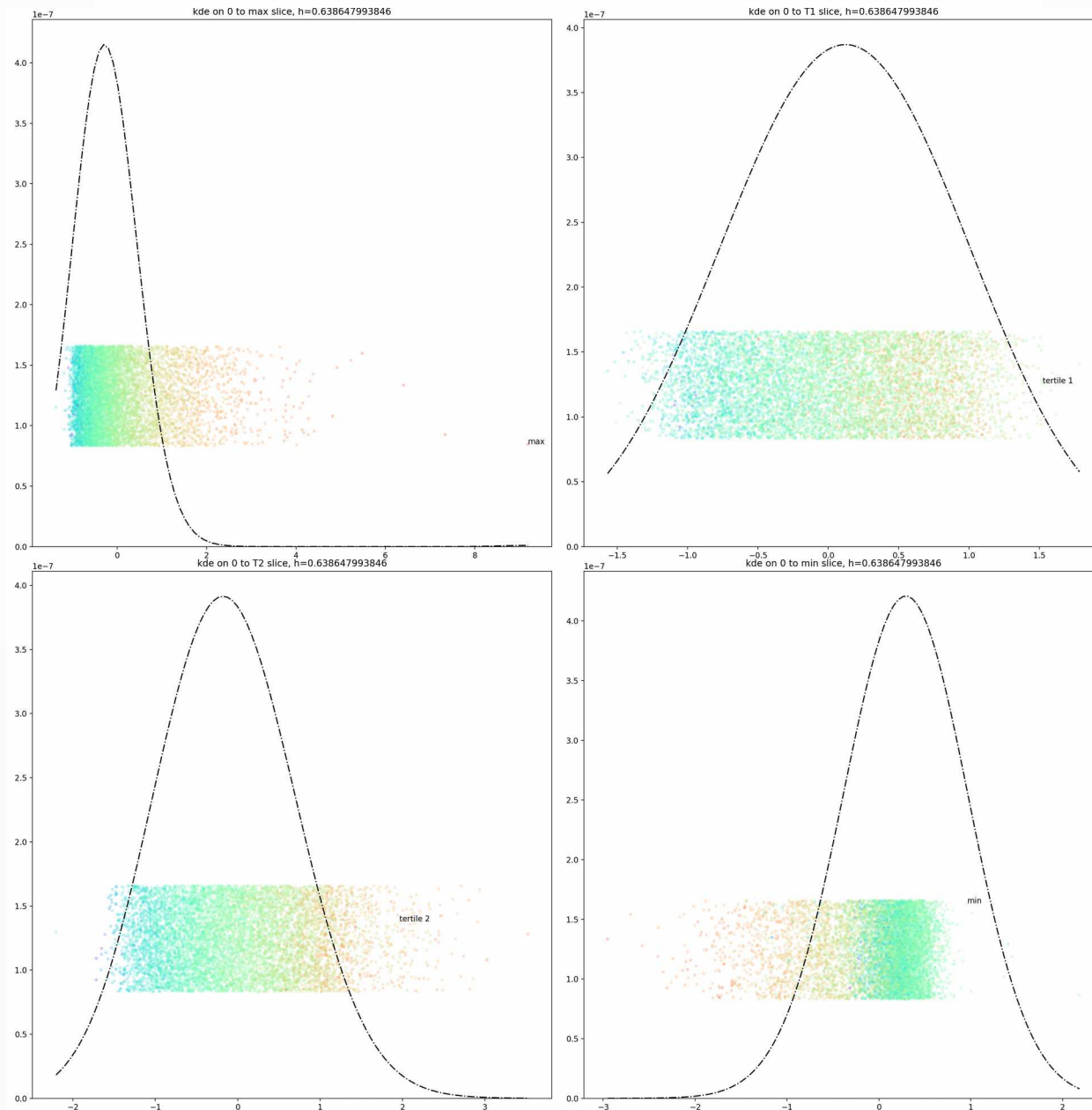
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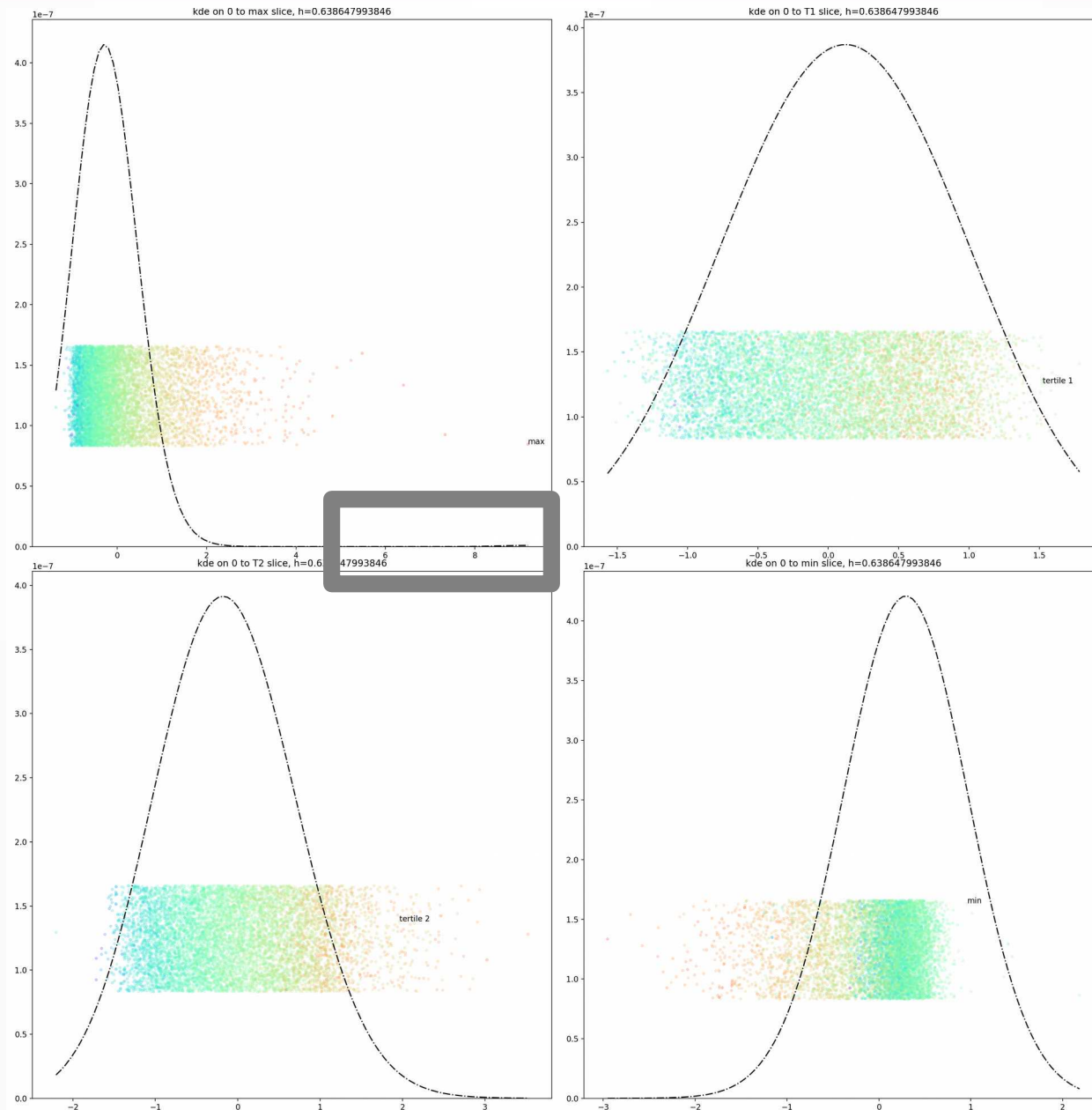
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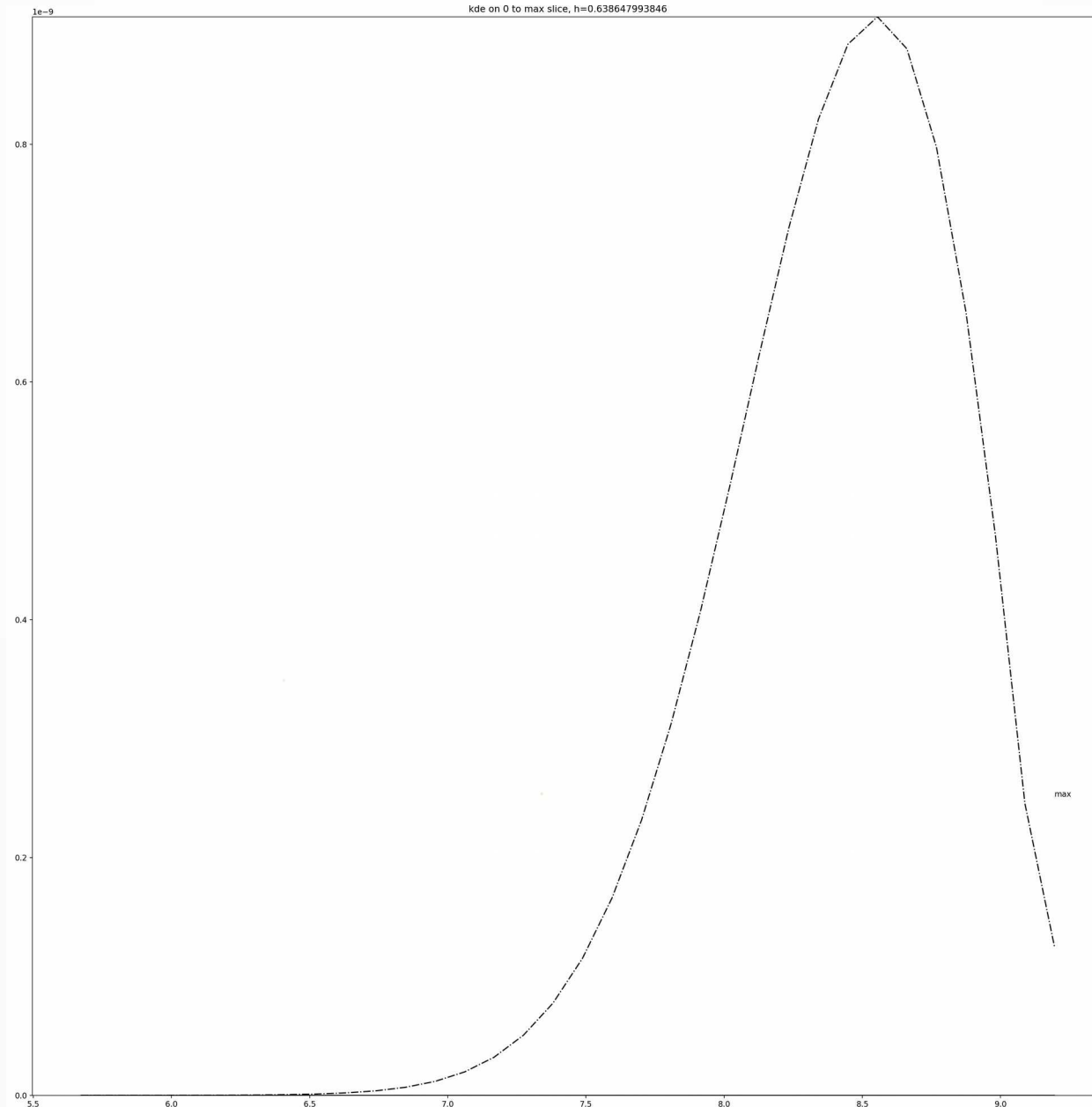
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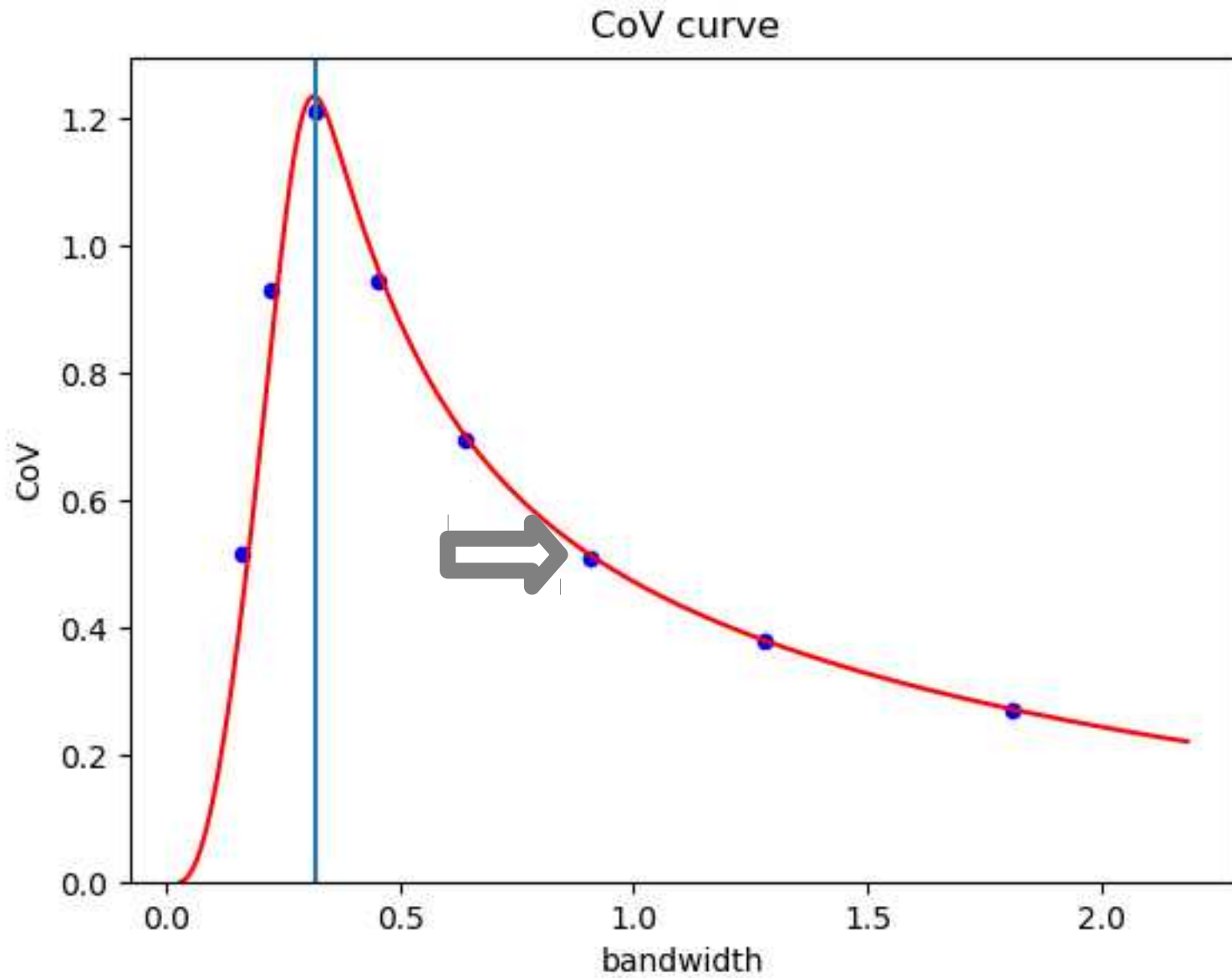
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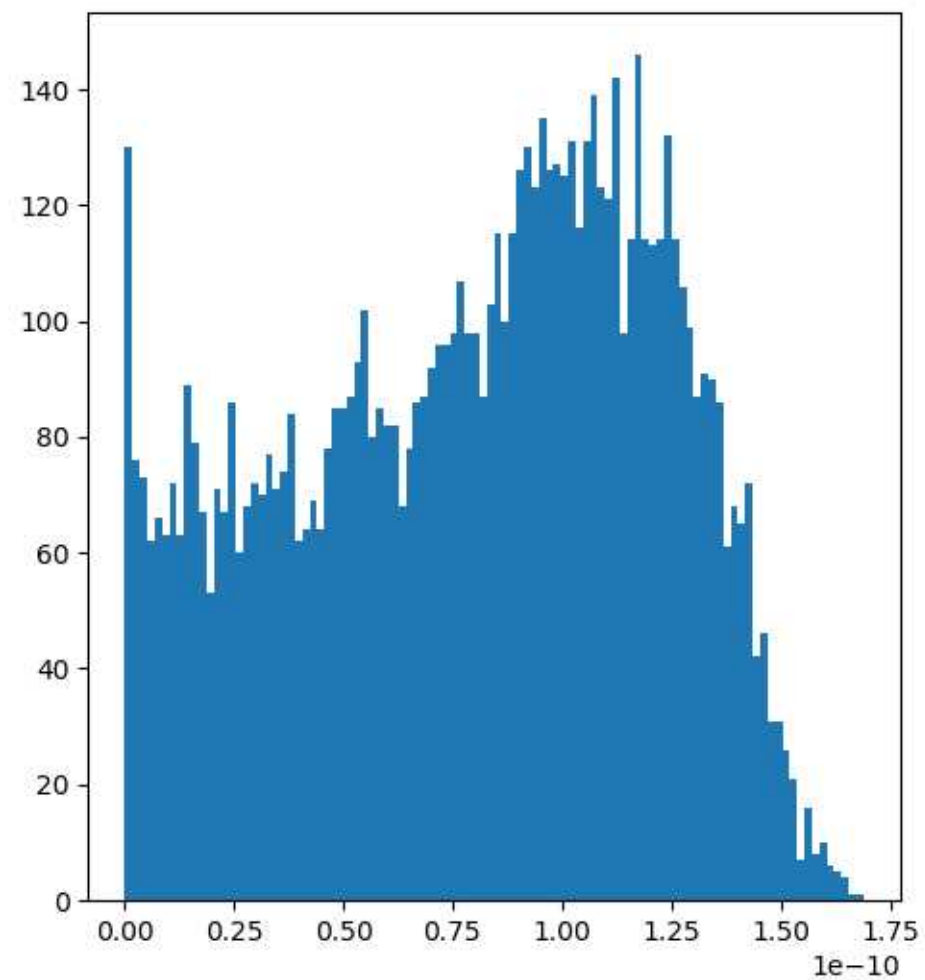
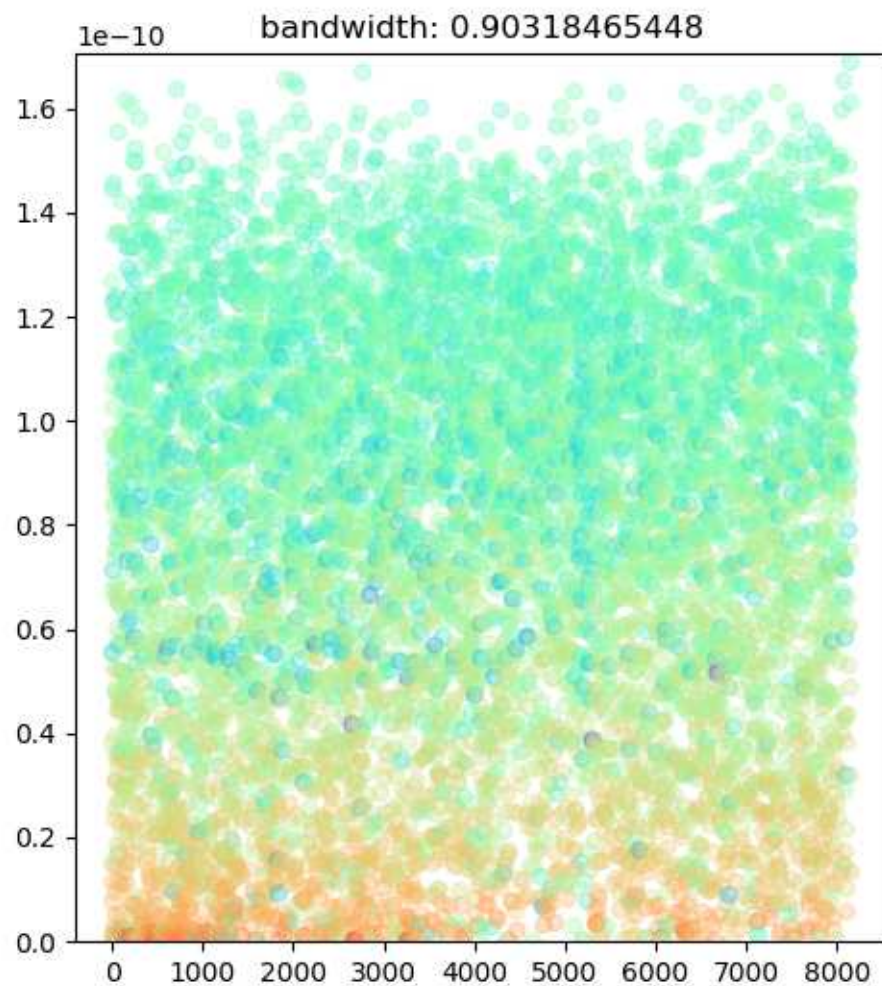
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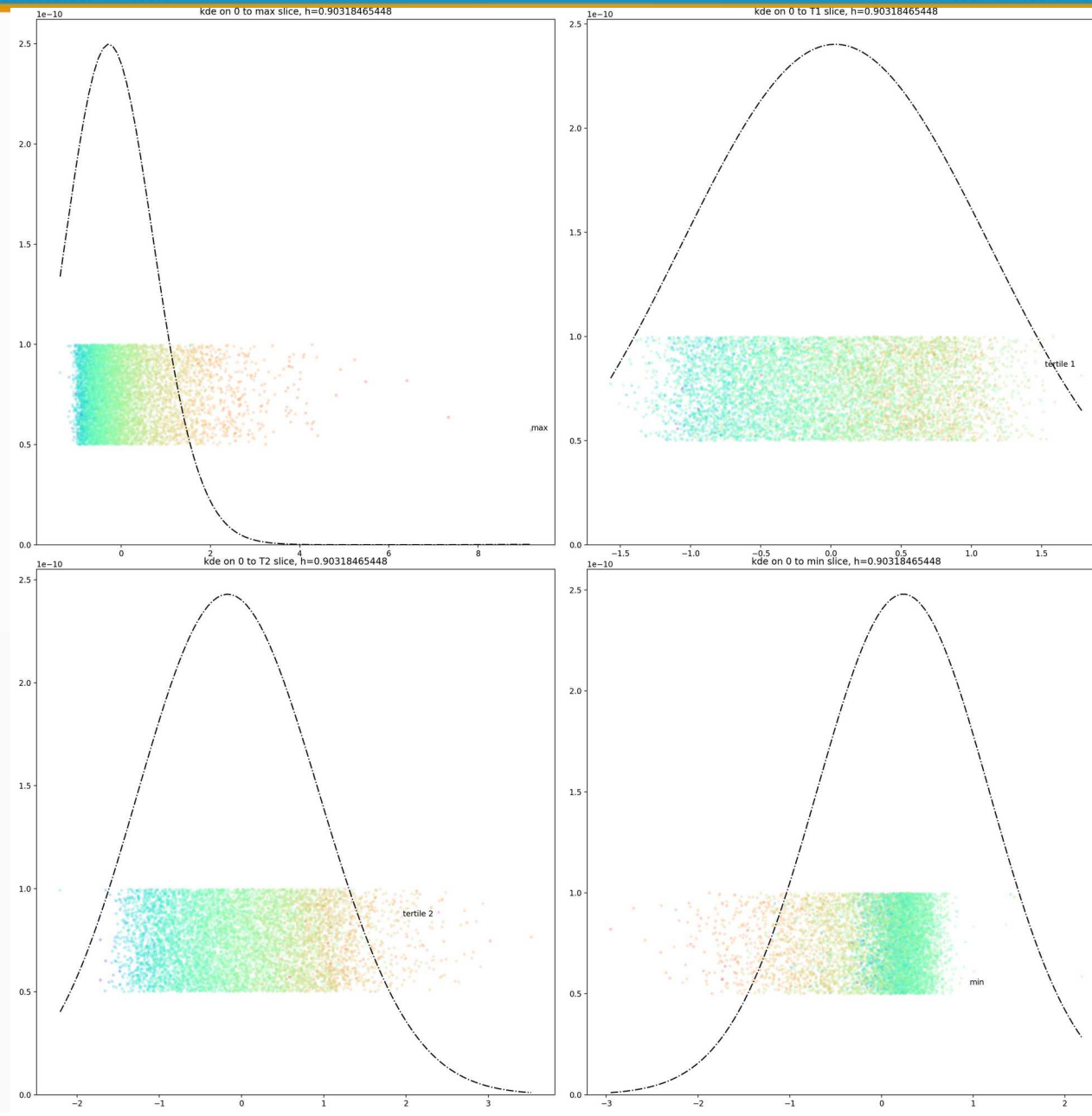
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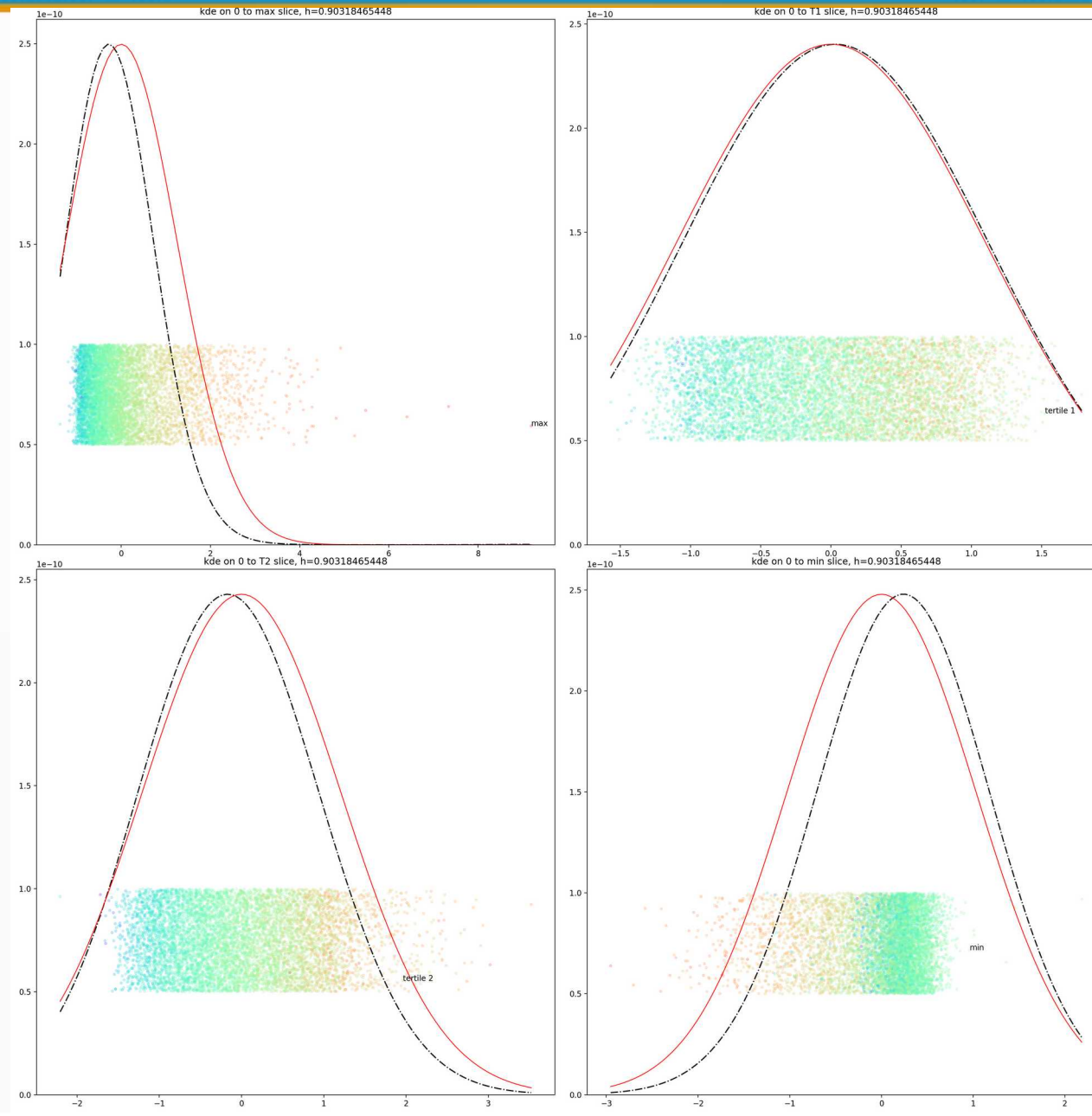
Bandwidth: 0.903 KDE heights



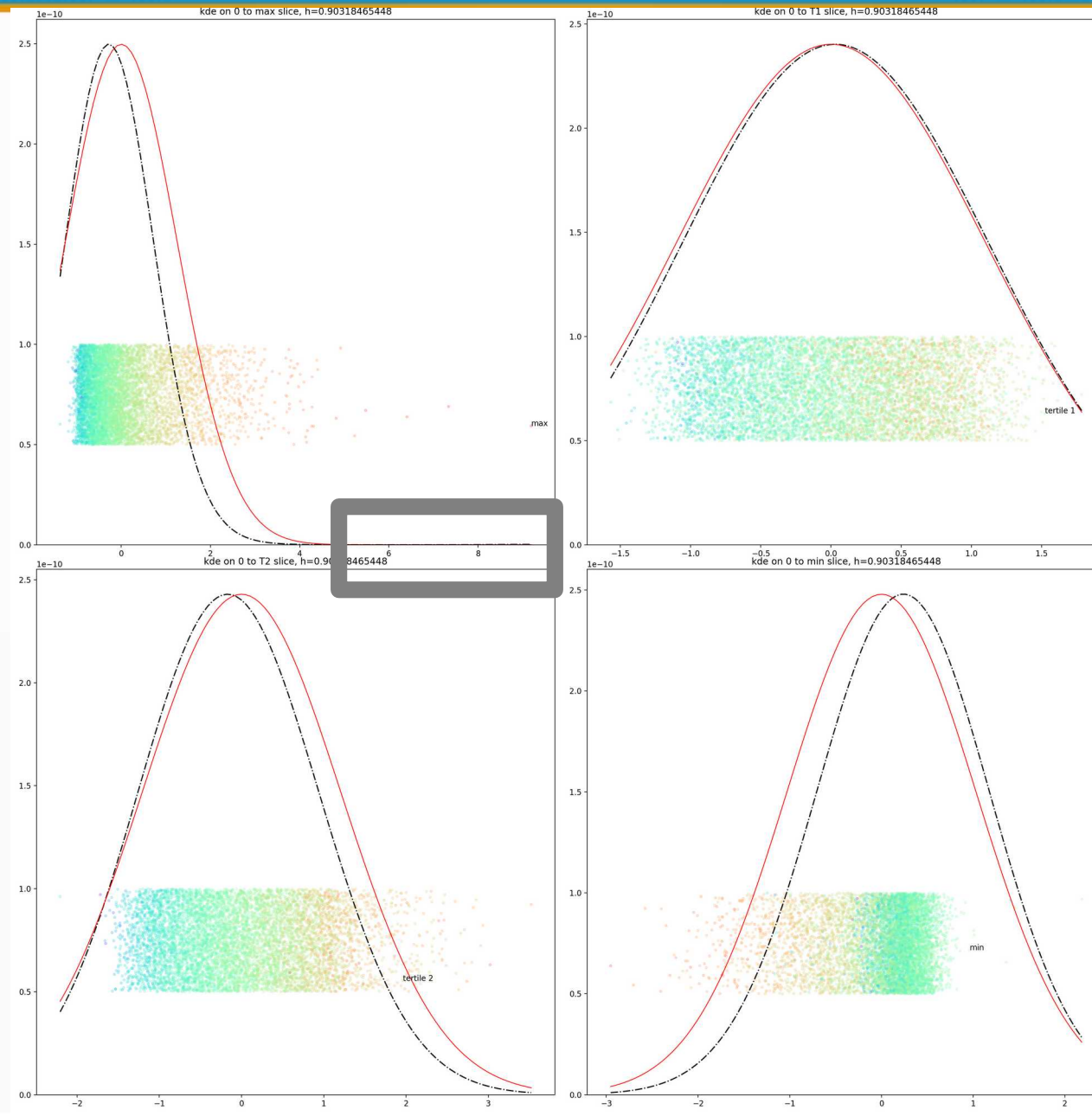
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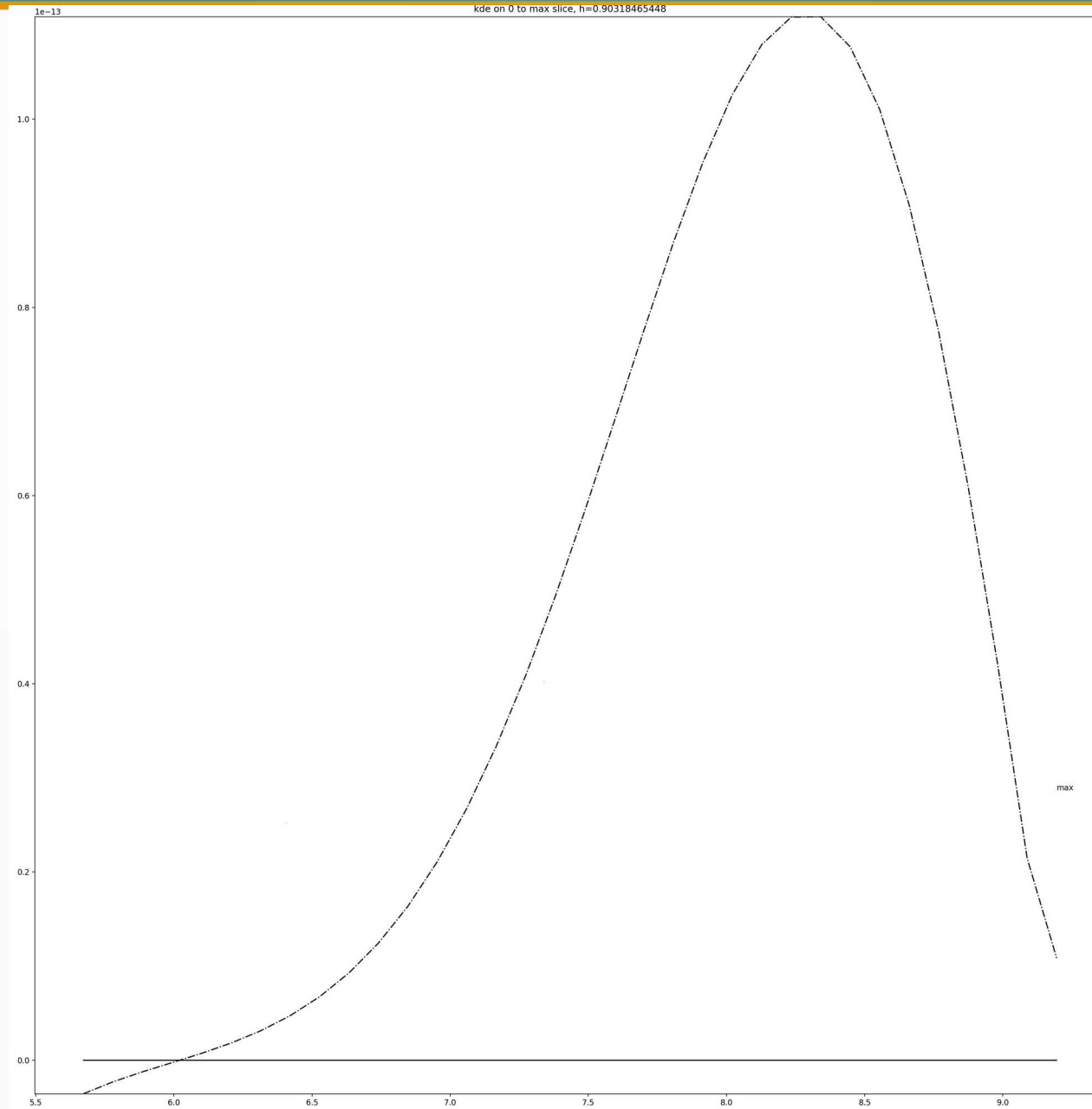
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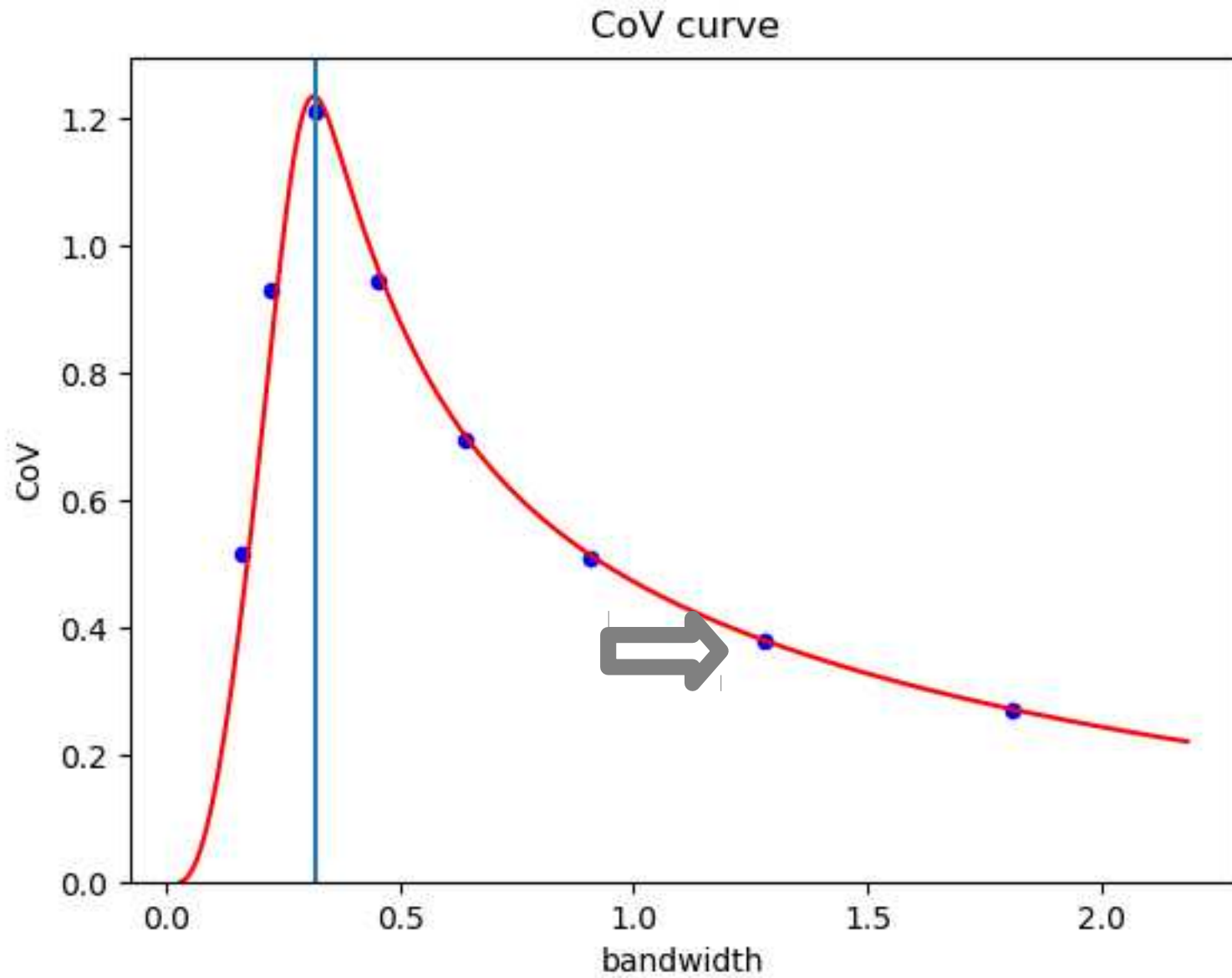
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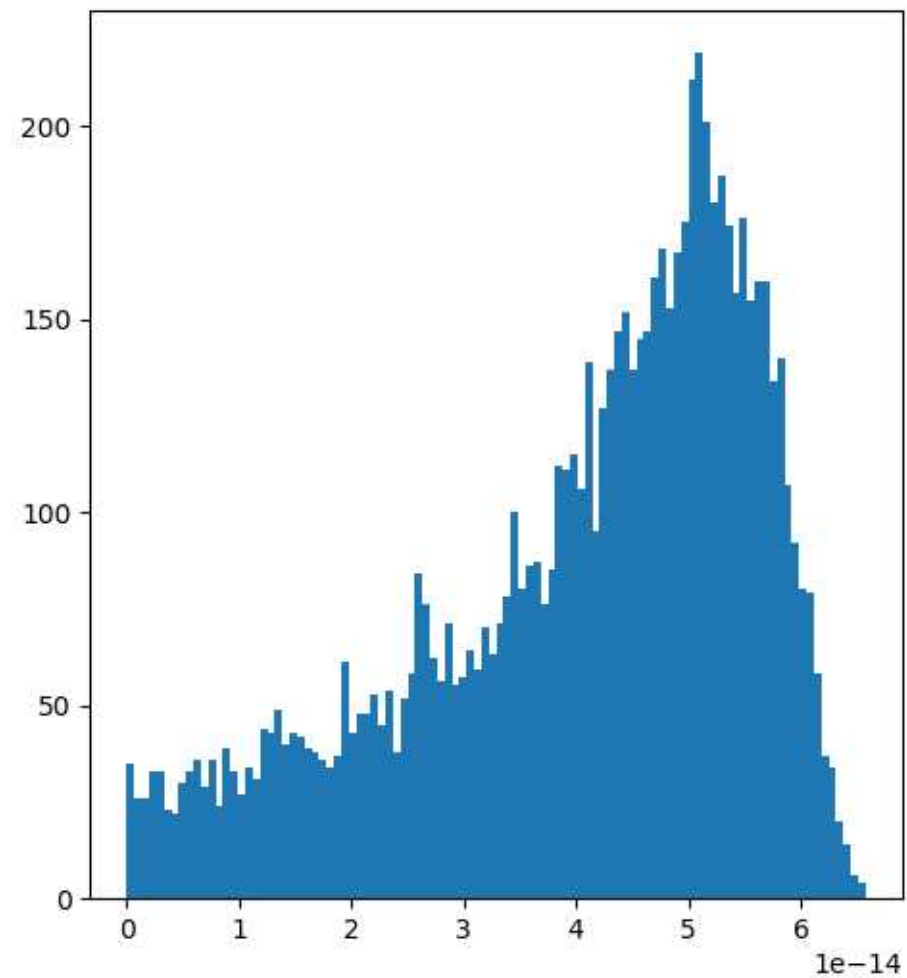
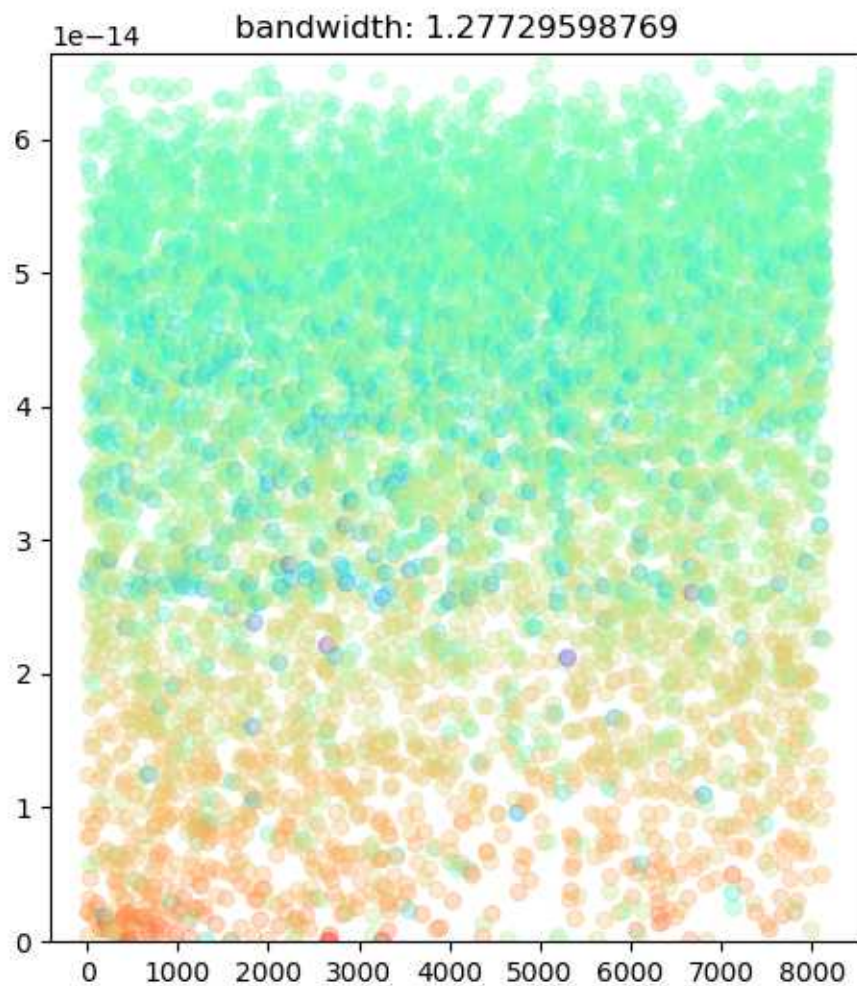
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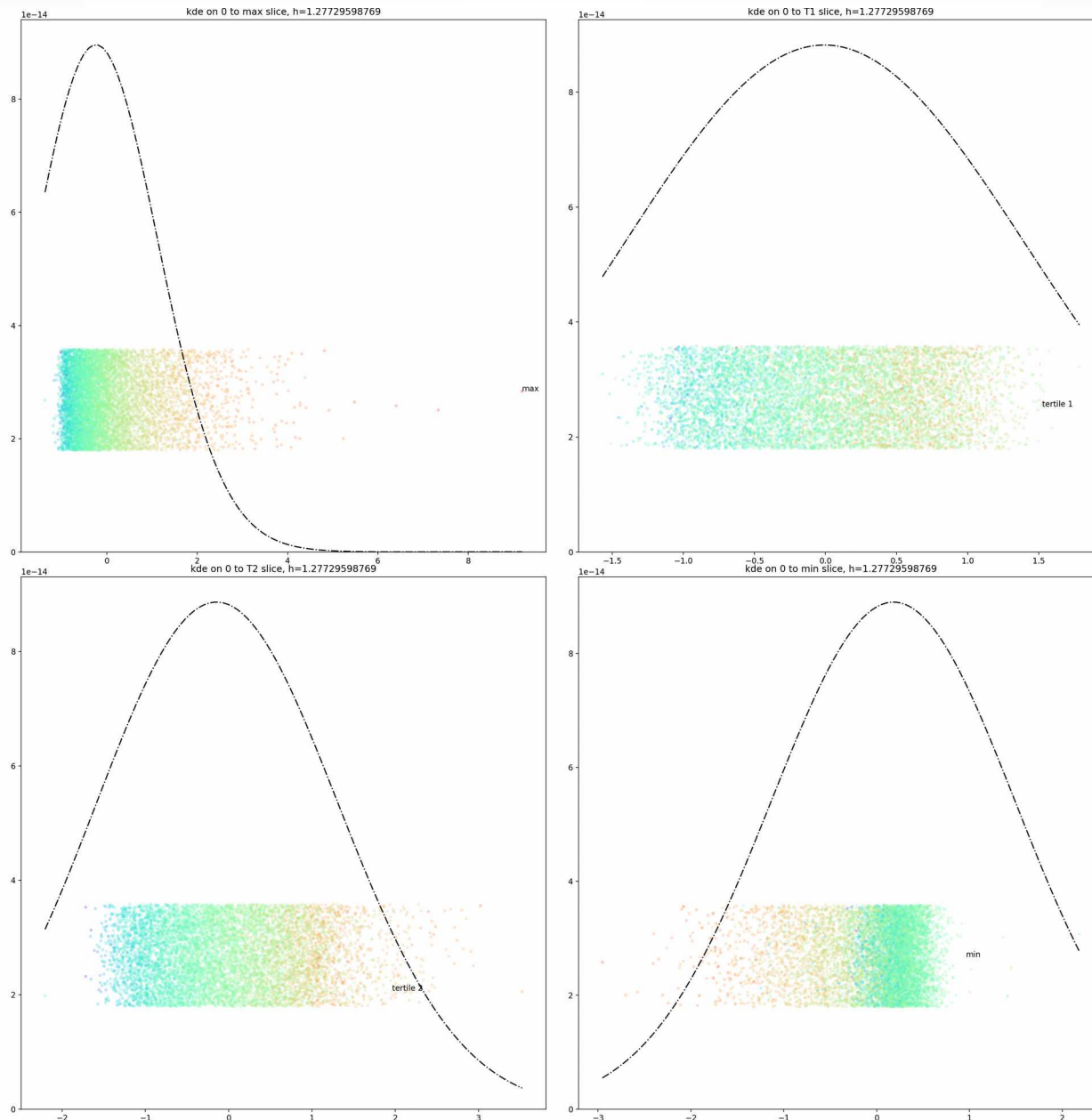
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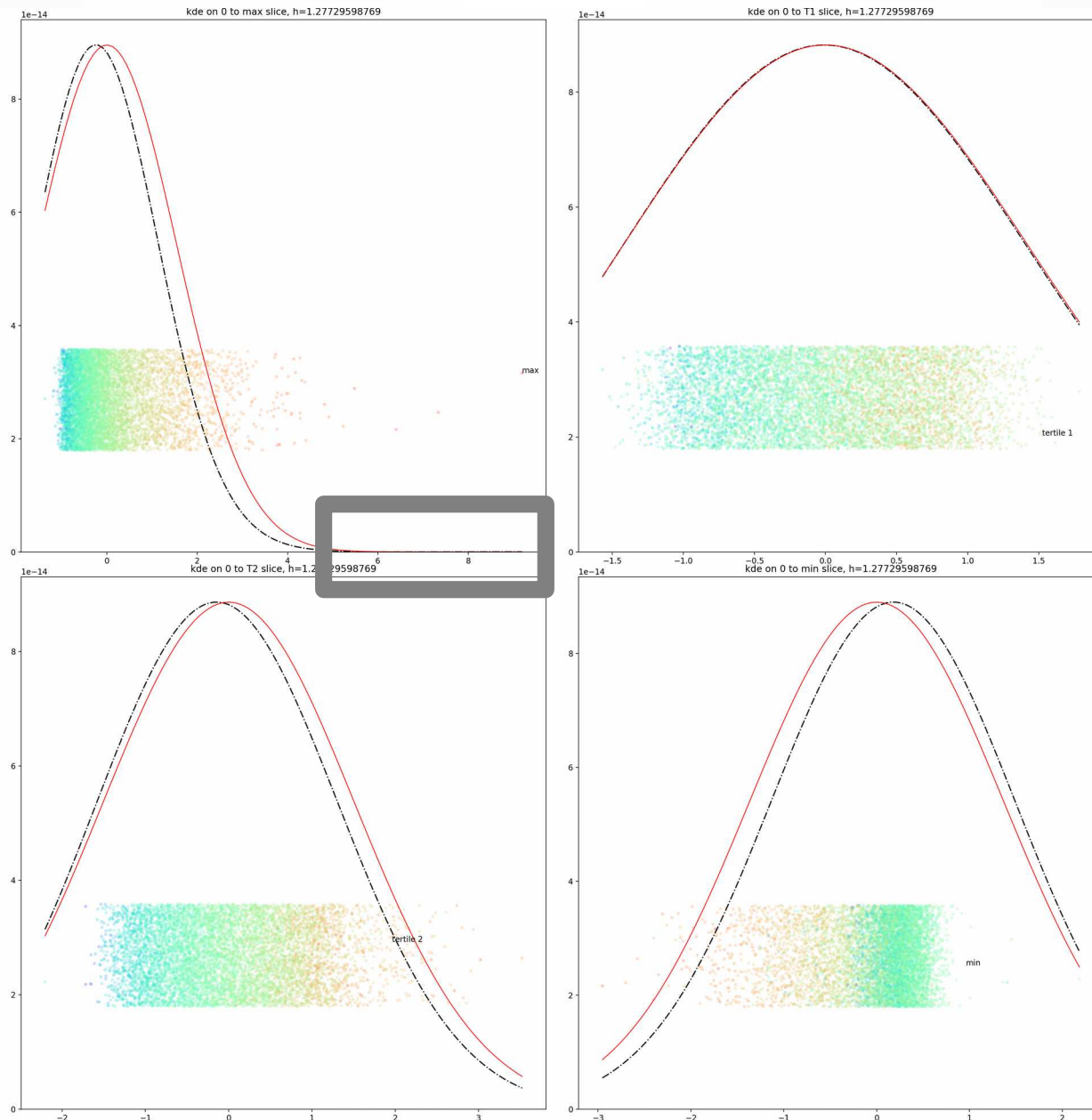
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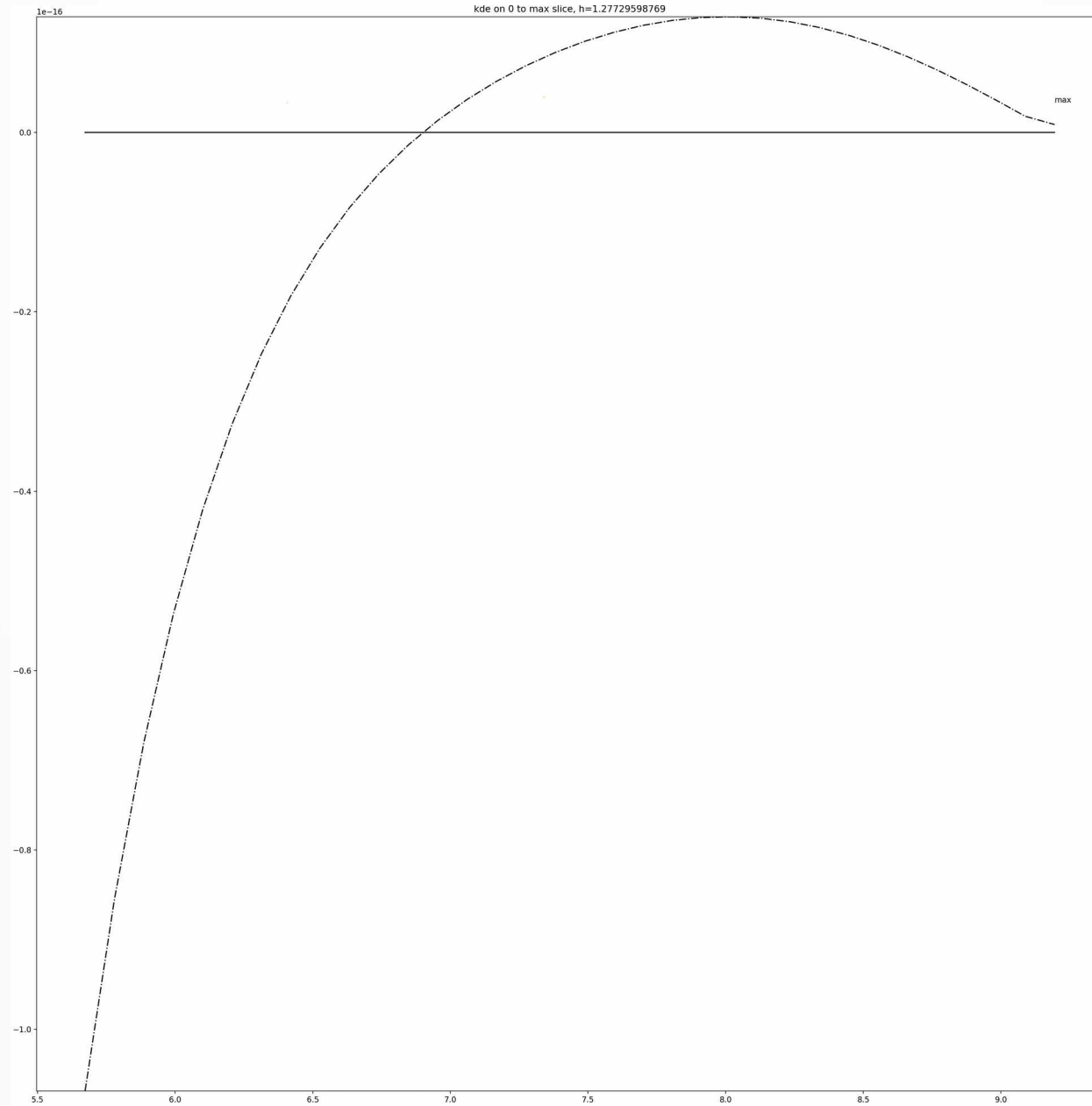
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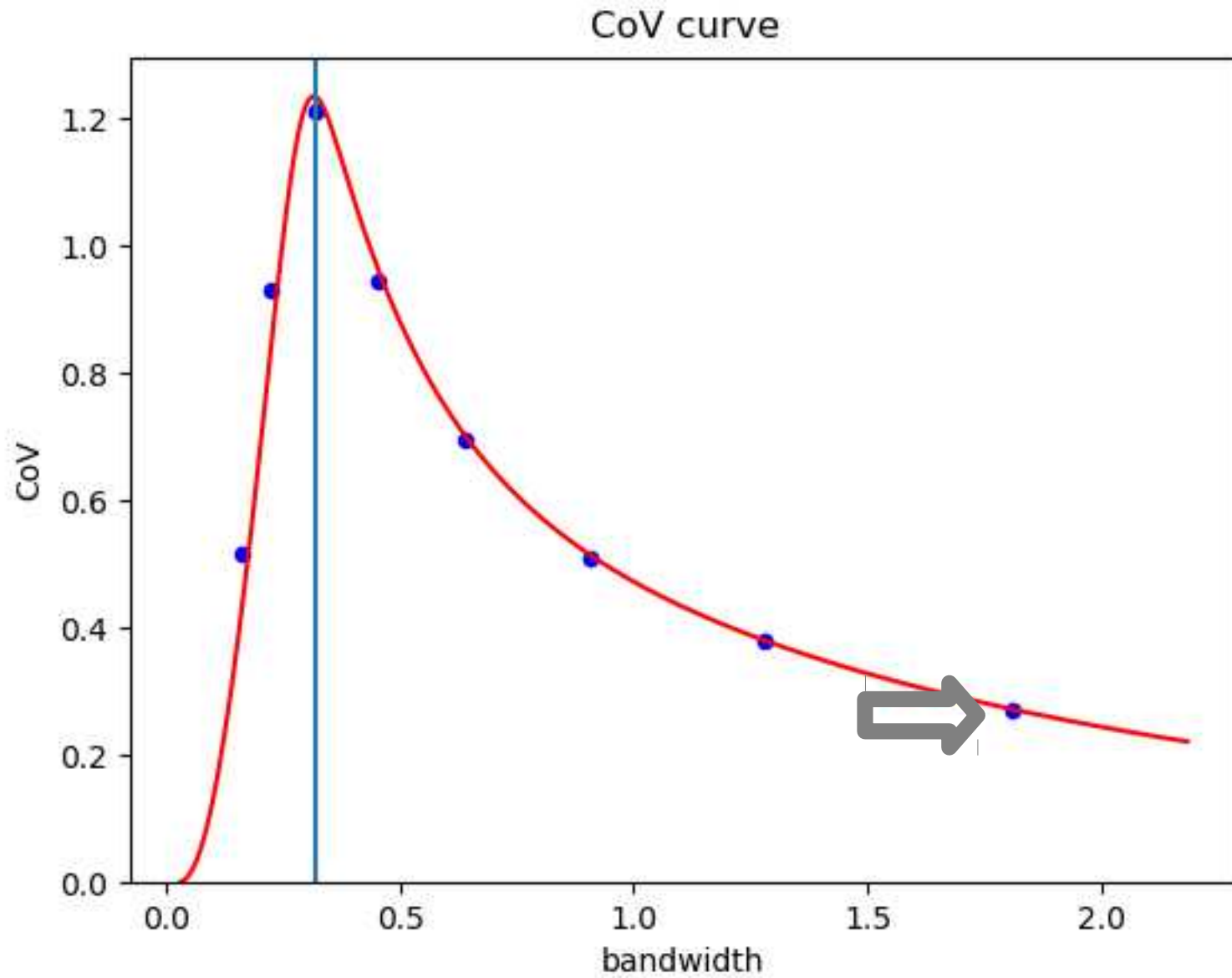
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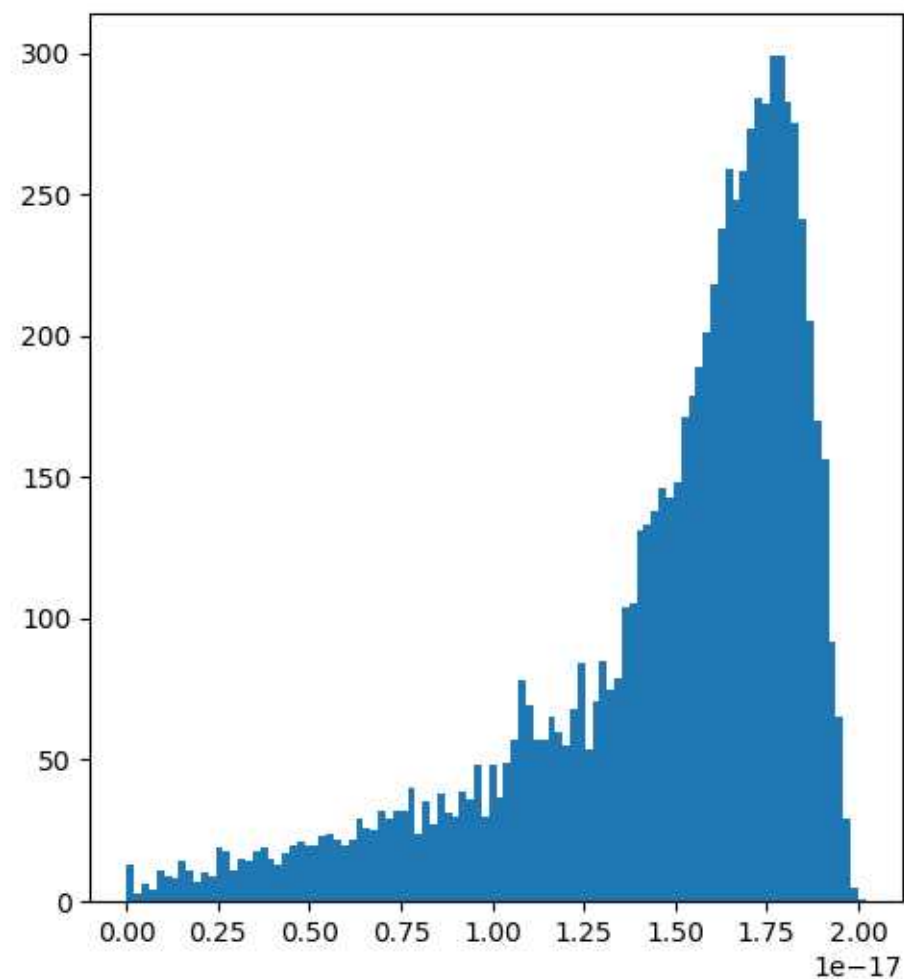
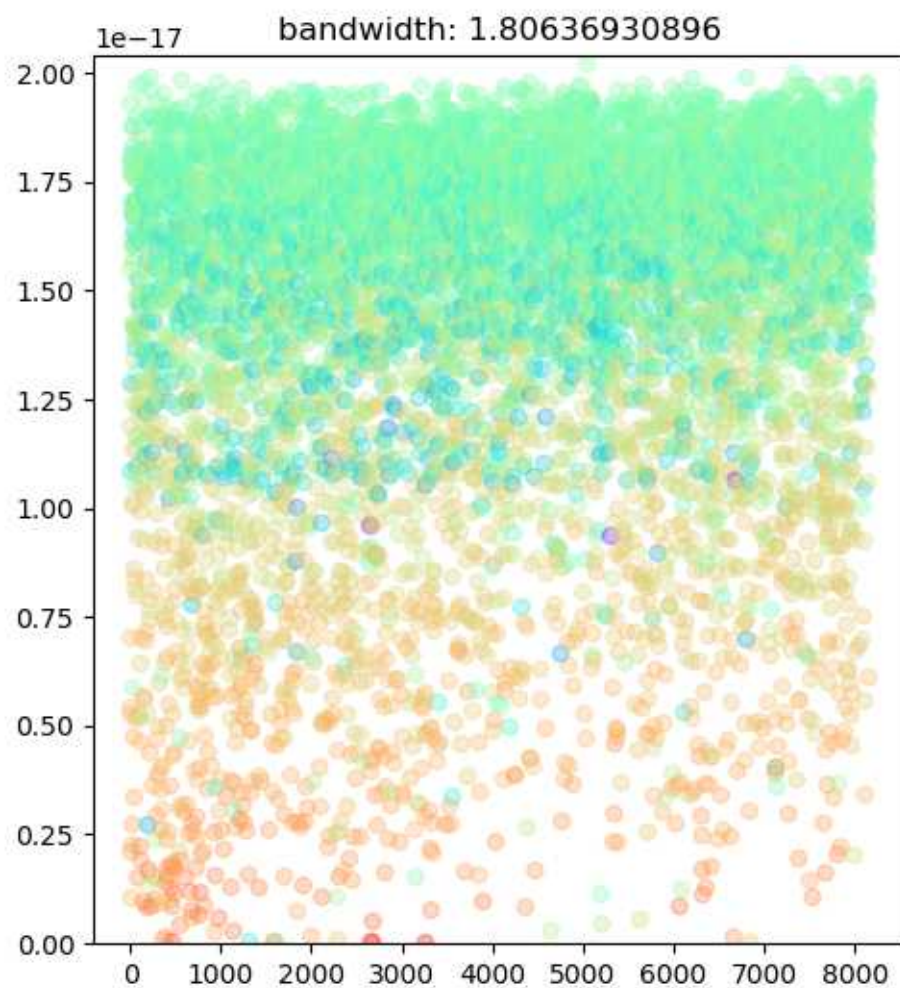
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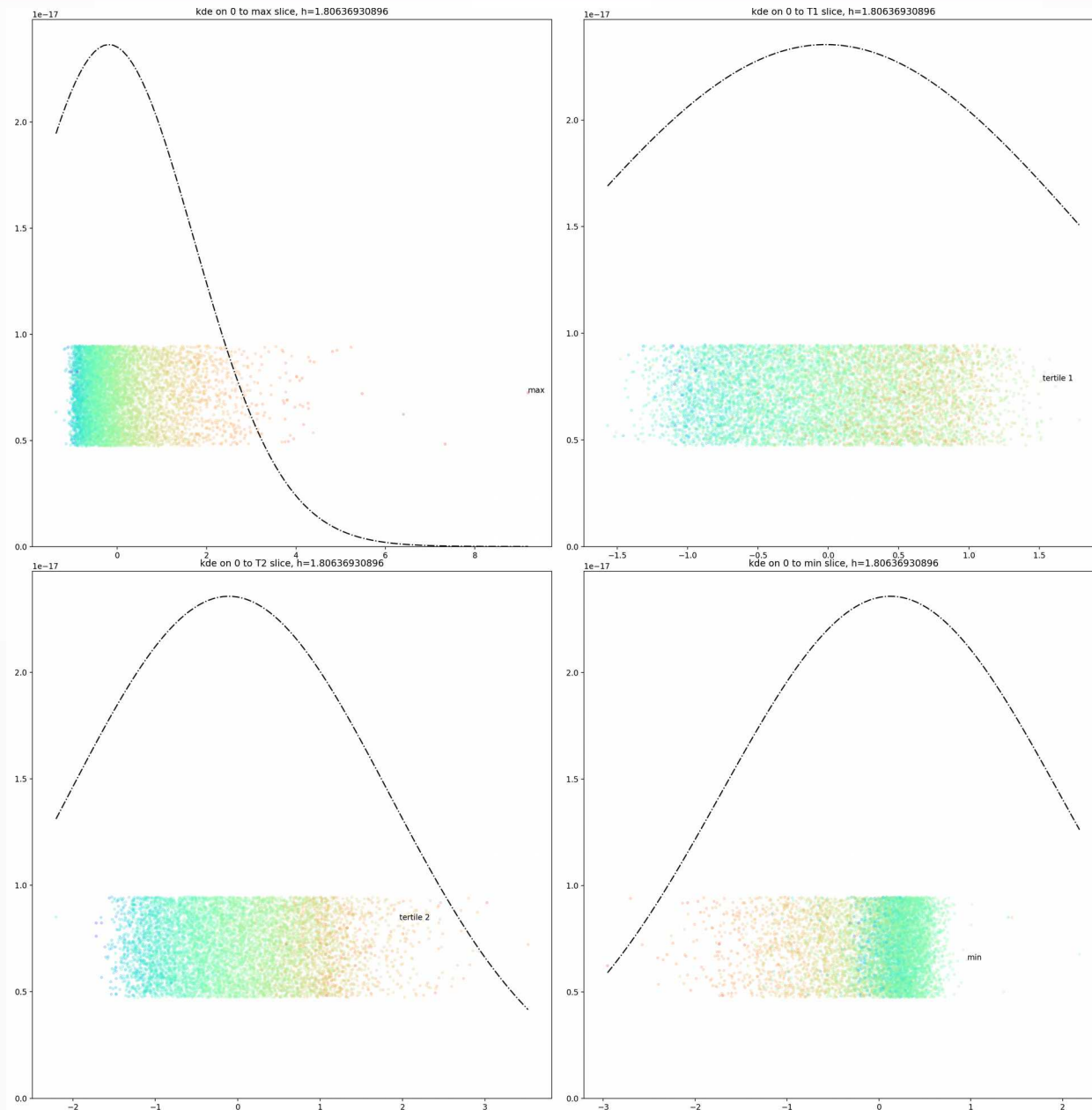
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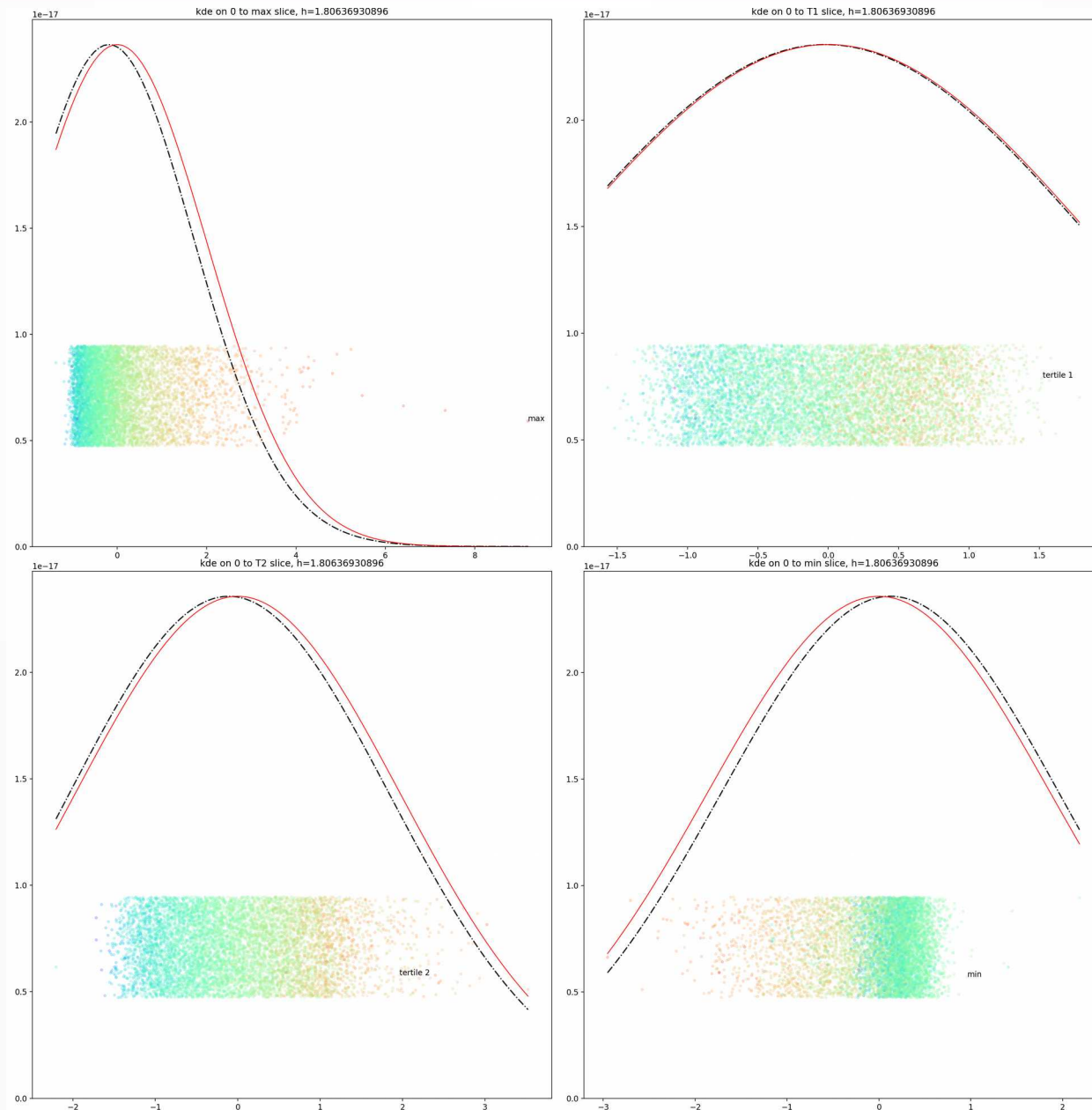
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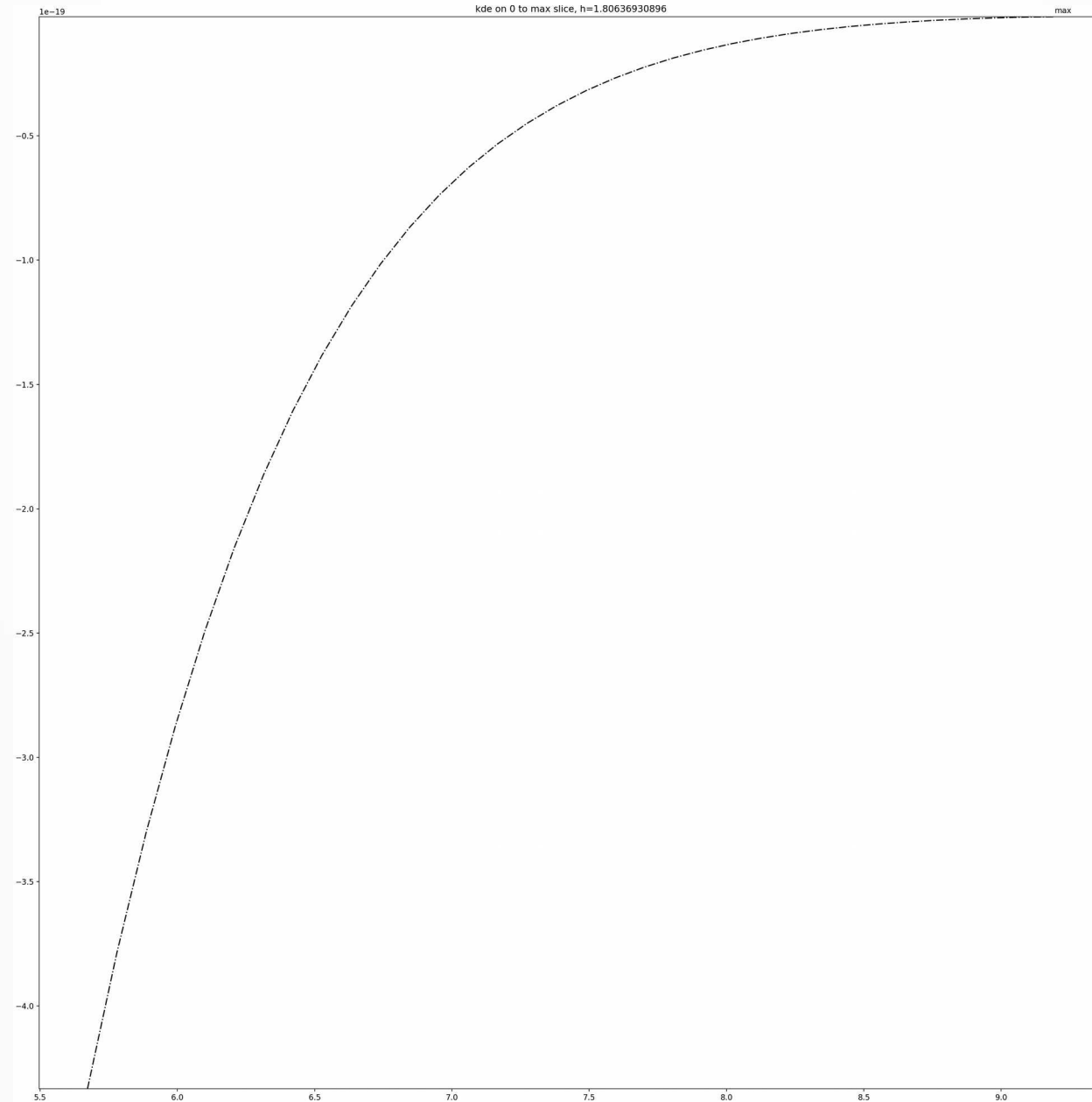
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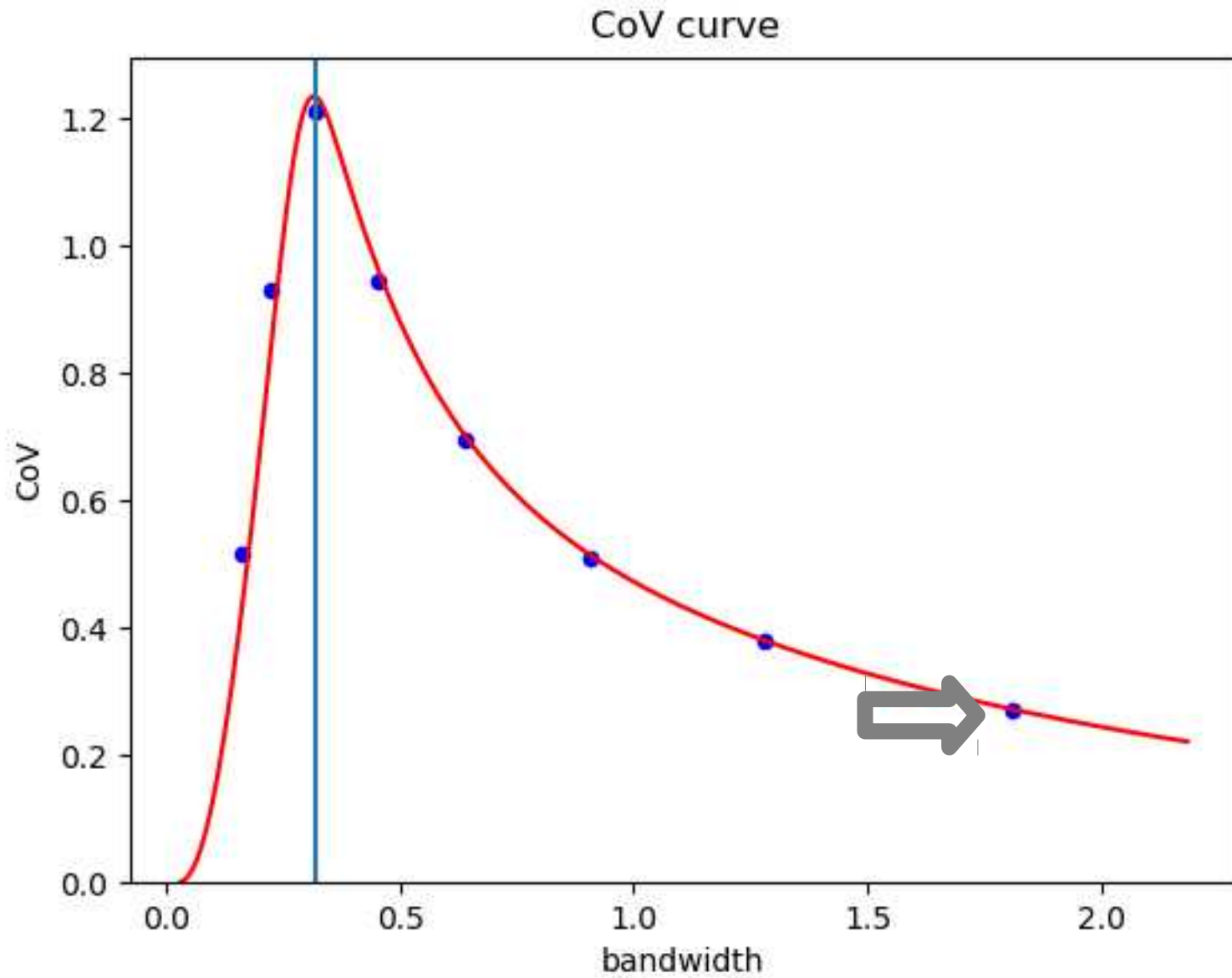
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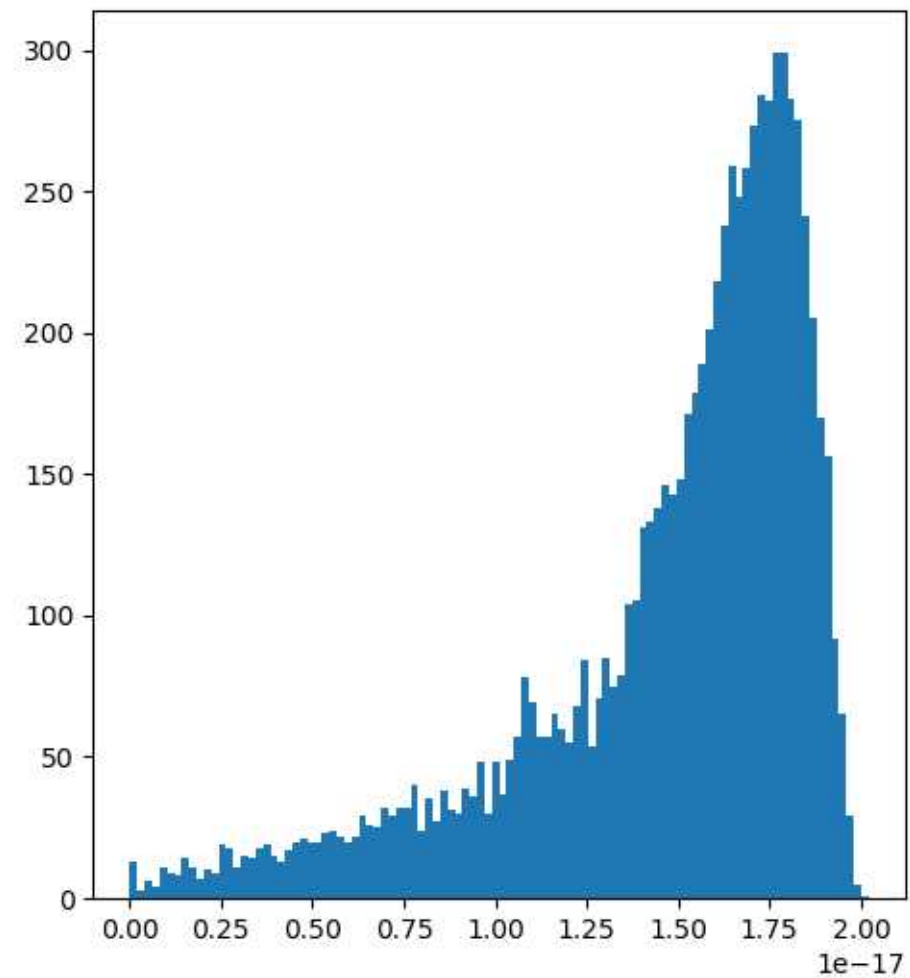
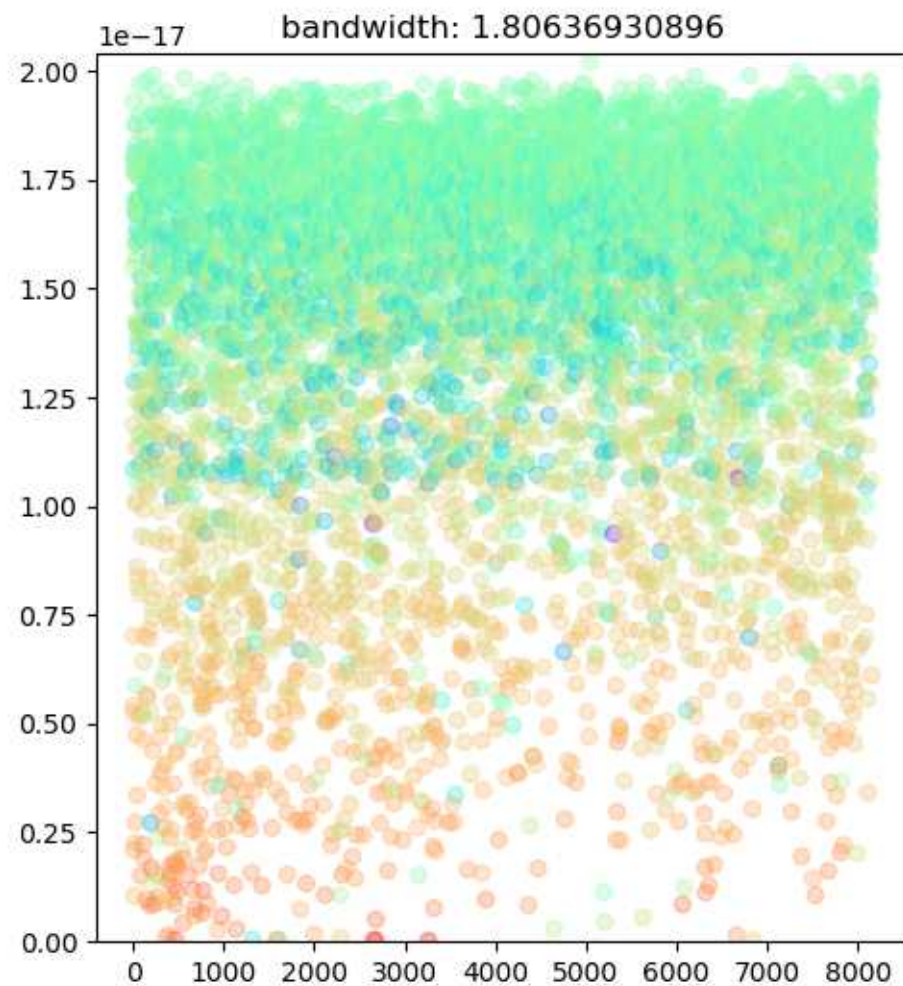
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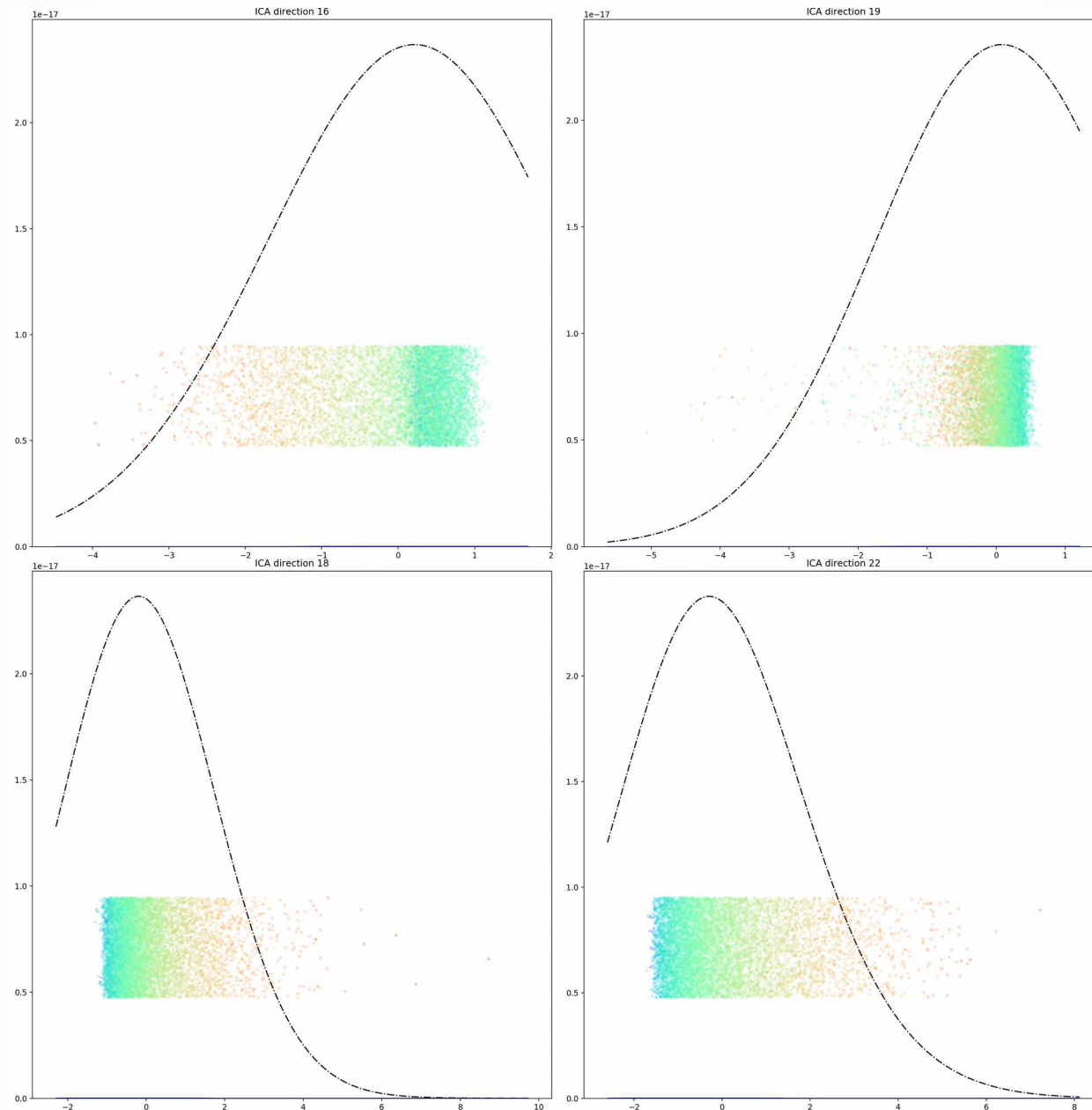
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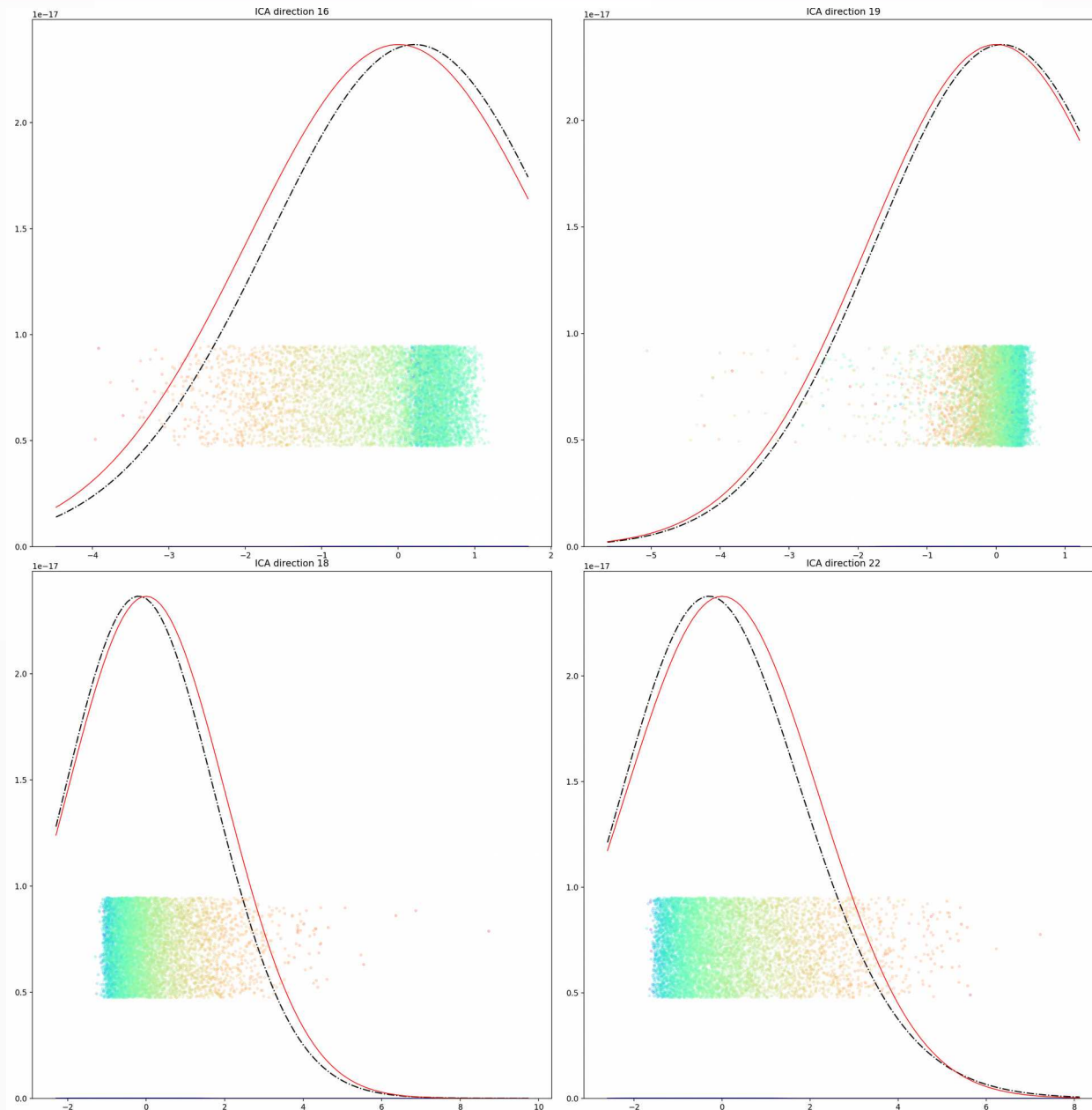
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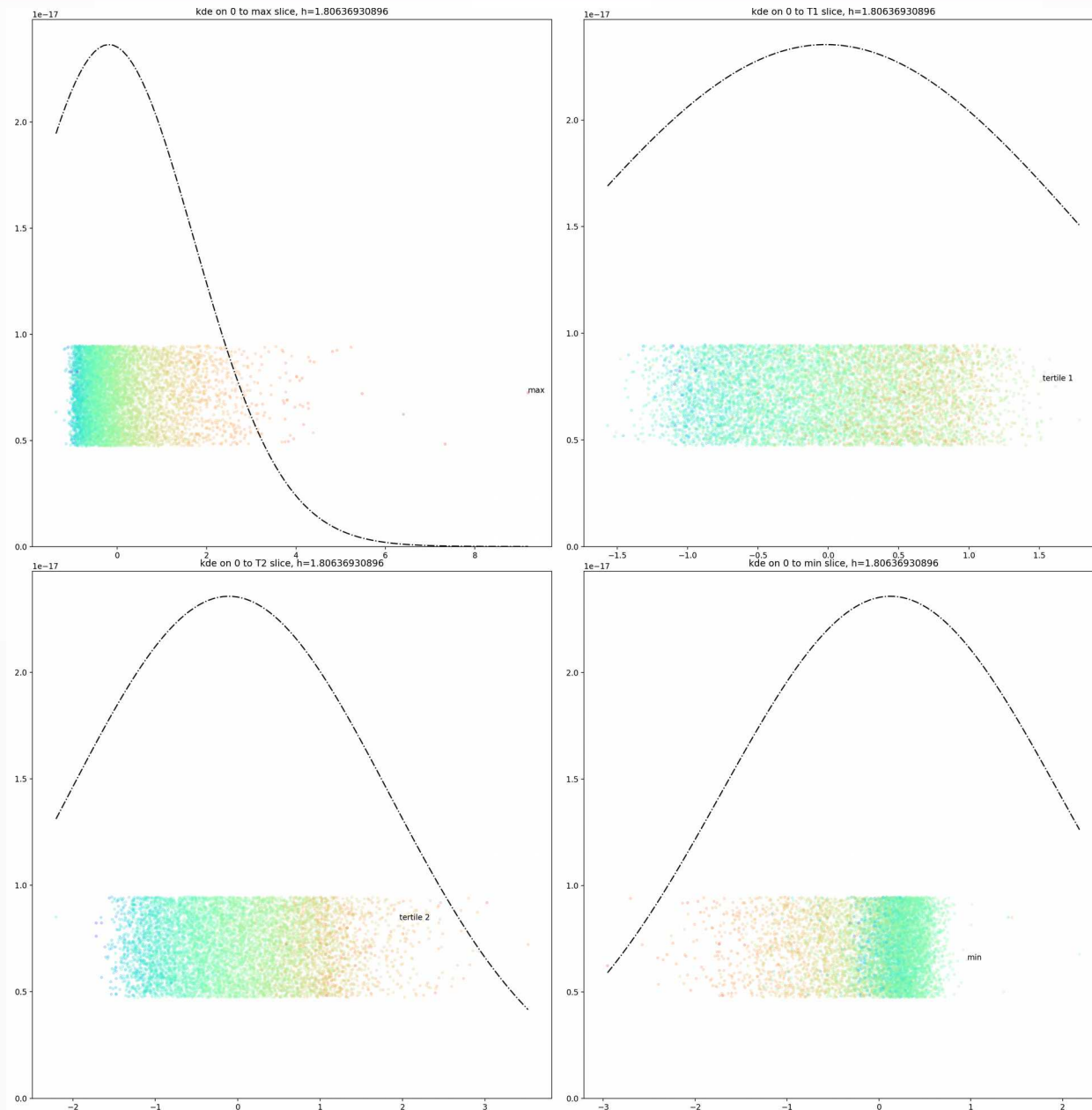
Bandwidth: 1.806, ICA projections



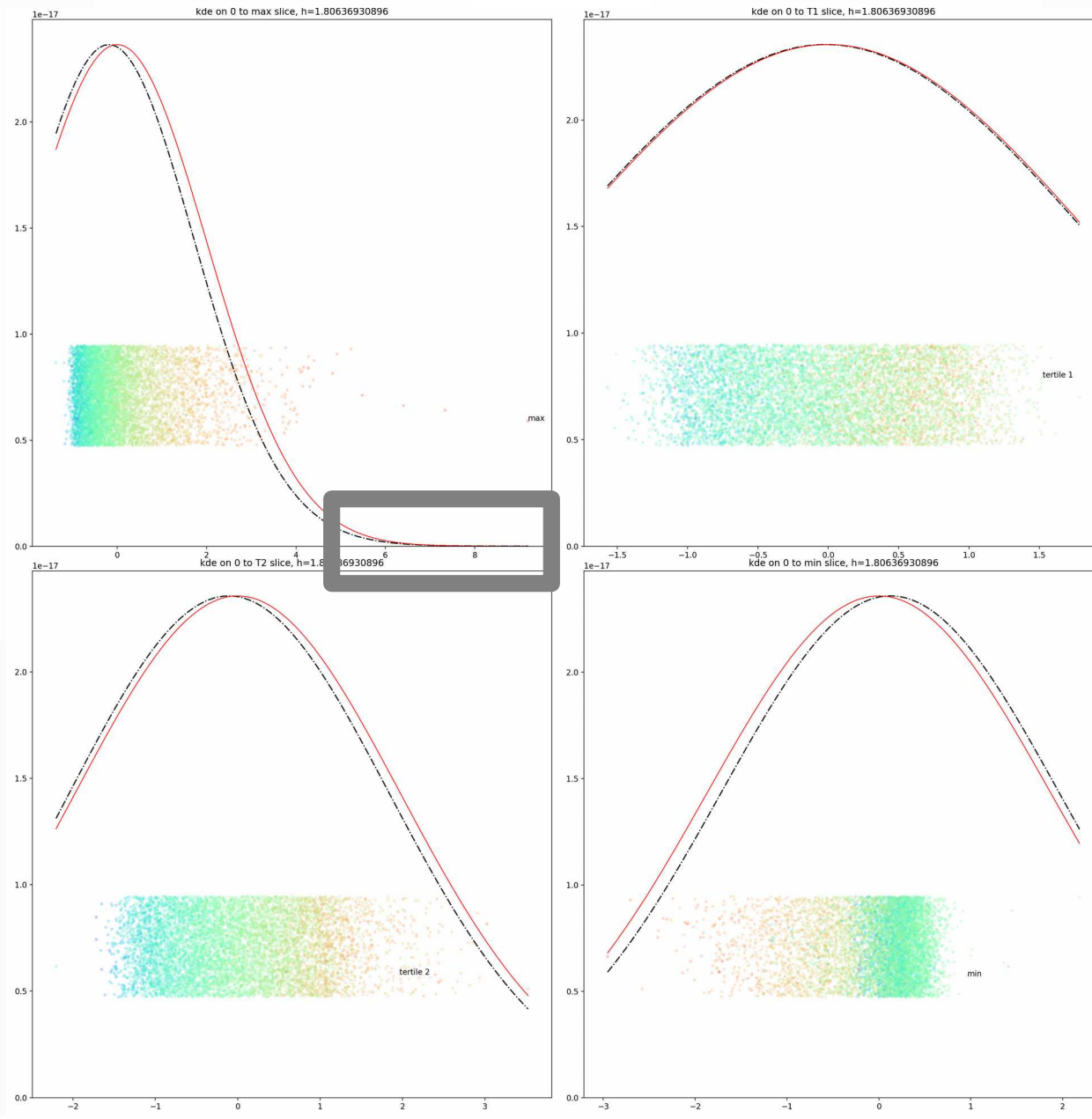
Bandwidth: 1.806, ICA projections



Bandwidth: 1.806, directional proj.



Bandwidth: 1.806, directional proj.



Bandwidth: 1.806, directional proj. deriv

