

Selective Inference after Unsupervised Hidden-Structure Identification

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Abstract: In the past few years, a new statistical inference framework for data-driven hypotheses called post-selection inference (PSI; also a.k.a. selective inference) has been actively studied. PSI framework enables the evaluation of data-driven hypotheses by taking into account that hypotheses were selected by applying a complex algorithm to complex data. Although the target of PSI framework has been mostly limited to feature selection problems so far, we have recently extended the framework to unsupervised learning scenarios and demonstrated that statistical reliability of unsupervised learning results can be properly evaluated. In this talk, we introduce PSI methods for evaluating the statistical reliability of data-driven hypotheses obtained by clustering and segmentation algorithms and illustrate the advantages by applying the methods to biomedical data.