Visual Summary Statistics

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Abstract

Traditionally, statistical summaries of categorical data often have been visualized using graphical plots of central moments (e.g., mean and standard deviation), or cumulants (e.g., median and quartiles) by box plots. In this work we reexamine the box plot and its relatives and develop a new hybrid summary plot that combines moment, cumulant, and density information. In view of the important role of plots in decision making, our work focuses on incorporating additional descriptive parameters while simultaneously improving the comprehensibility of the summary plots using advanced visual techniques. In many complex situations providing a comprehensive view of the data requires additional summary characteristics, therefore, we submit that these additional parameters, like higher-order central moments can be valuable elements of multi-dimensional summary displays.