

Bootstrap Methods: Recent Advances and New Applications

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Abstract: Since Efron's groundbreaking paper in the Annals of Statistics 1979 there has been a flood of research on the bootstrap theory and applications. In the 1980s the theory developed and there was an exponential growth in the number of journal articles on the topic. In the 1990s many important real world applications followed. The results have been published in a number of textbooks. Most notably Hall (1992), Efron and Tibshirani (1993), Davison and Hinkley (1997), Shao and Tu (1995) and Chernick (1999). The developments since 2000 have not been as extensively covered with the text Lahiri (2003) the main reference, but it emphasizes the theoretical developments with dependent data. In this presentation I will survey the developments of the years from the mid 1990s to the present where the theoretical difficulties of inconsistency of bootstrap estimates for certain estimation problems have been overcome by modifications to the "naive" bootstrap with techniques such as the m -out-of- n bootstrap. I will also highlight some biostatistical applications including testing for individual bioequivalence which was successful enough to appear as a recommended method by the FDA in a 1997 guidance document.

References:

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