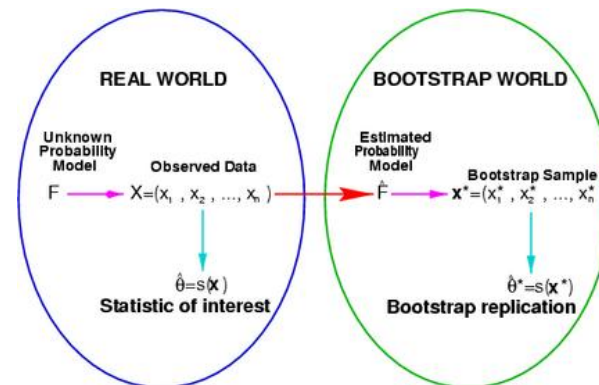


Bootstrap Algorithms for Signal Processing



Pro-/Projektseminar or Bachelor/Master Thesis



The bootstrap is a method for inferring the distribution of a statistic derived from a sample. It is a computer-based method, which substitutes considerable amounts of computation in place of theoretical analysis. Despite its power, the bootstrap has found little application in engineering. In most applications the bootstrap has been used to approximate the distribution or some other characteristics of an estimator. However, the bootstrap can achieve much more. For example, the bootstrap can be used to choose an estimator among a family of estimators, or to estimate the order of a linear or a non-linear model. These problems are of high practical value in engineering.

This project involves investigating the bootstrap and other similar statistical techniques with the aim of developing algorithms for signal processing applications. Such applications include detection of signals in interference of unknown distribution and model order selection. Experience with MATLAB will be useful. A bootstrap MATLAB toolbox will be available for use by the students. Those strong in statistic will have an advantage.

If you are interested in the project please contact:

Prof. Dr.-Ing. A. Zoubir
zoubir@spg.tu-darmstadt.de
Room S3|06 254

