Computational cost and time threads

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This paper investigates some of the well known general problems a Ph.D. student usually finds when is conducting a research. First, we concentrate on efficient algorithm construction and second the simulation and generation of a survey tables. Both situations under examination take an example from the field of time series analysis and filtering.

All the paper turns around using R as a statistical environment to help us focus on the real statement of the research.

The starting point of the first part shows some interesting improvement expressed in a mathematical fashion that has to be evaluated within a computer programming language (R). Here three different approaches will be presented. The first approach comes from the direct translation of the mathematical formulation into our user software platform. The second approach takes the first one and makes a vectorization (where it is possible) and the third approach tries to avoid repeated or unnecessary evaluations.

The second part stands on extracting meaningful conclusions about the three algorithms and with the problem of generating tables of the results. It shows how to select the best algorithm and how to automate the generation of tables in order to add then in your latex document.

The conclusion drawn about the first part of the paper takes an easy expression: "*do not make computer work as much as you would*". The second conclusion, close to the first one visualizes the need of: "*do not loose your time with simulation and with the effort of translating the best simulation ratios into your latex tables if someone can do it for you*".