Abstract

NP : NonParametric Functional Estimation Software

NP is a NonParametric Functional Estimation Software available on NeXT computers. The fields of application of NP are engineering related problems mainly statistical ones. It has been released at the University of Montpellier II (France) under the direction of Prof. Alain Berlinet by Christophe Bourrier (in charge of programming) in collaboration with Pierre Defoly and Christian Bros. Two tasks are devoted to this object-oriented program : estimation of unknown functions from data and simulation. NP includes the NeXT interface concepts : menus, preferences, help, information panels. The very rich graphic interface (colors, zoom, superimposition, ...) makes any representation of function very easy. Panels give all information about current parameters and show mathematical formulas in extensive form : NP can be used to perform high level interactive smoothing of data and to learn about approximation methods by people unaware of mathematical background. The main characteristic of NP is modularity : it is very easy for users to add modules to perform their own simulations and compute their own estimates. Numerical results and graphics are saved or printed (on a variable scale) by a powerful file manager. The simulation module library contains all standard probability distribution functions : uniform, normal, exponential, etc. Tests can be performed by defining suitable score functions. Smoothing parameters and functions can be chosen either visually using graphic windows or automatically using a library of score functions to appreciate the accuracy of estimates. Pipes can be defined between windows; for instance the residuals associated with a regression function estimate are automatically sent to a density function estimate window. New statistical or numerical tools can be easily implemented as NP modules. This makes NP appear also as a powerful research program.

More information available on request. Send e-mail to **berlinet@montpellier.inra.fr**