Getting Statistical Software Out to You Faster

Statistical software development never stops at SAS. While our users are enjoying the new features and capabilities of a new release, we are fast at work on what will become the next release of SAS/STAT software.

Sometimes, we complete new software some time before the next release of SAS is scheduled. A few years ago, we decided to find a way to get that new software to our users without waiting for that next release. We instituted a web download program for new statistical procedures and used it to introduce the experimental GLIMMIX procedure to our customers. Several thousand Windows users have put the new procedures through its paces, and since then we have made a production version available to both Windows and UNIX customers.

PROC GLIMMIX extends the reach of the MIXED procedure by fitting statistical models where the response is not necessarily normally distributed. These generalized linear mixed models (GLMM), like linear mixed models, assume normal (Gaussian) random effects. Conditional on these random effects, data can have any distribution in the exponential family. The binary, binomial, Poisson, and negative binomial distributions, for example, are discrete members of this family. The normal, beta, gamma, and chi-square distributions are representatives of the continuous distributions in this family.

Other downloadable procedures followed. Next was the QUANTREG procedure. This procedure performs quantile regression, which extends the regression model to conditional quantiles of the response variable, such as the 90th percentile. Quantile regression is particularly useful when the rate of change in the conditional quantile, expressed by the regression coefficients, depends on the quantile. The main advantage of quantile regression over least squares regression is its flexibility for modeling data with heterogeneous conditional distributions. Data of this type occur in many fields, including biomedicine, econometrics, and ecology.

The next procedure to go out was the GLMSELECT procedure, which performs effect selection in the framework of general linear models. A variety of model selection methods are available. The procedure offers extensive capabilities for customizing the selection with a wide variety of selection and stopping criteria, from traditional and computationally efficient significance-level-based criteria to more computationally intensive validation-based criteria. PROC GLMSELECT also provides graphical summaries of the selection search. You can use the GLMSELECT procedure to select your model (including one with class effects) and then you can explore it in more detail in a subsequent procedure such as REG or GLM.

Getting this work out between major releases of SAS has been very beneficial. Users get to try out our software as soon as it's ready to go, and their feedback on the experimental versions often leads to valuable improvements. We've been able to offer workshops at users group meetings and several statistical conferences on these procedures to introduce the methodology as well as the syntax. In addition, PROC GLIMMIX has made it into several texts and is the subject of a SAS Education course.

Stay tuned for upcoming new releases this fall! Learn more about the downloads Learn more about the downloads