

## An Interactive Computer Package for Fitting Probability Distributions to Observed Data

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An important task in developing a discrete event simulation model is determining the probability distributions of the input random variables. This is often accomplished by fitting standard distributions to observed system data. However, since this fitting process is rather difficult and time consuming when done by hand, it is often performed in a superficial and incorrect manner. The net effect is, of course, that the selected distributions may not be good representations of the observed data.

In this talk we discuss a state-of-the-art, interactive computer package for fitting probability distributions to observed data. By combining the latest statistical techniques with graphical displays, the package allows one to perform a comprehensive analysis of a data set in significantly less time than would otherwise be possible. It is designed to be used with standard terminals on a moderate-sized computer having a FORTRAN compiler.

The package was used to analyze three nonnegative data sets which were supplied by the Air Force. In each case, the standard lognormal or gamma distribution was found to provide an excellent representation for the data. However, for two of the data sets, an even better representation was obtained by fitting less familiar distributions such as the inverted gamma or inverted beta. These distributions would normally not be considered by an analyst doing hand calculations.

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