

## **NETS Releases Random Number Generation Library for Microsoft .NET Platform**

Release of .NET Version of Army Research Lab (ARL) Random Number Generation Library to Extend Reliability and Trust to .NET Applications

The United States Army Corps of Engineers Navigation Economic Technologies (NETS) program announces the availability of a version of the ARL random number generation library that is designed to be used within the Microsoft .NET framework – ARL# (ARL *Sharp*). The use of this library provides a sound and trustworthy source of statistical pseudo-random numbers for the purpose of Monte-Carlo simulation.

Dr. Richard Saucier of the Army Research Laboratory (ARL) authored the research paper “Computer Generation of Statistical Distributions” in March 2000. This paper and the associated library of utility code for the generation of pseudo-random numbers within statistical distributions is the foundation of the new ARL# package. Dr. Saucier’s paper (ARL-TR-2168) as well as his original full C++ source code and detailed documentation for the libraries and testing procedures can be found at <http://ftp.arl.mil/random/>

The purpose of the Navigation Economic Technologies (NETS) research program is to develop a standardized and defensible suite of economic tools for navigation improvement evaluation. A sound random number generator is essential to the proper functioning of Monte Carlo simulation models that are part of the NETS product set, and the ARL library was considered to be one of the best and most useful of such available libraries. Work under the NETS program has translated the original ARL code base, providing a publicly available transposition of that library to the C# language and the .NET execution platform – ARL#, allowing for greater ease of use by developers.

The current version of the trans-coded library is fully object-oriented and has been tested under version 2.0 of the Microsoft .NET platform. Dr. Saucier’s original library supports 27 continuous distributions and 9 discrete distributions as well as data-driven, bivariate, and number-theoretic distributions. The initial release of the ARL# supports uniform, triangular, normal, and poisson distributions. Future releases of ARL# will expand the supported set of distributions, as they become required for NETS model development work.

For more information related to ARL # or a copy of the code base, contact Mark Lisney, Principal Investigator, NETS at [Mark.W.Lisney@iwr01.usace.army.mil](mailto:Mark.W.Lisney@iwr01.usace.army.mil)