

**PACKAGE ID** - 001287MLTPL00 CRAX

**KWIC TITLE** - Cassandra Exoskeleton

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**LIMITATION CODE** -COPY                   **AUDIENCE CODE** - LIM

**COMPLETION DATE** - 03/01/1998   **PUBLICATION DATE** - 03/01/1998

**DESCRIPTION** - This software assists the engineering designer in characterizing the statistical uncertainty in the performance of complex systems as a result of variations in manufacturing processes, material properties, system geometry or operating environment. The software is composed of a graphical user interface that provides the user with easy access to Cassandra uncertainty analysis routines. Together this interface and the Cassandra routines are referred to as CRAX (CassandRA eXoskeleton). The software is flexible enough, that with minor modification, it is able to interface with large modeling and analysis codes such as heat transfer or finite element analysis software. The current version permits the user to manually input a performance function, the number of random variables and their associated statistical characteristics: density function, mean, coefficients of variation. Additional uncertainty analysis modules are continuously being added to the Cassandra core.

**PACKAGE CONTENTS** - Media Directory; Software Abstract; Media Includes Executables, To install software type A:SETUP.EXE software installation will proceed with input from user regarding desired installation location;

**SOURCE CODE INCLUDED?** - No

**MEDIA QUANTITY** - 2 3.5 Diskettes

**METHOD OF SOLUTION** - A variety of solution methods are available to the user including a number of analytically based probabilities methods (e.g. advanced mean value, Hasofer-Lind, Rackwitz-Fiessler) as well as pseudo and quasi Monte Carlo methods(e.g. latin-hyper cube with either pseudo Monte Carlo or a quasi Monte Carlo method such as Sabol sequences to generate input variables). additional solution methods are continuously being developed and added to the Cassandra core.

**COMPUTER** - MLT-PLTFM

**OPERATING SYSTEMS** - IRIX, SunOS, MacOS 8x, Windows NT and Windows 95, Linux

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**PROGRAMMING LANGUAGES** - na

**SOFTWARE LIMITATIONS** - The software is currently limited to a single user, although a web-browser based version is in development. The maximum number of random samples that can be generated is 300. All common probability density functions are included, but there are obviously many more that can included as the need arises. The software has no theoretical limitations other than those imposed by the specific hardware platform on which the software is installed.

**SOURCE CODE AVAILABLE (Y/N)** - N

**RELATED SOFTWARE** - The graphical user interface is an extension to the Tool Command Language/Tool Kit (Tel/Tk) software currently copyrighted by the Regents of the University of California, Sun Microsystems and other parties. Permission is granted to use, copy, modify, distribute and license the Tel/Tk software for any purpose. No written agreement, license, or royalty fee is required. Modification to the software may be copyrighted by their authors.

**ABSTRACT STATUS** - Released as-is 3/2/1999.

**SUBJECT CLASS CODE** - Z

**KEYWORDS** -

COMPUTER PROGRAM DOCUMENTATION  
C CODES  
DATA COVARIANCES  
MONTE CARLO METHOD  
PROBABILISTIC ESTIMATION

**EDB SUBJECT CATEGORIES** -  
990200

**SPONSOR** - DOE/DP

**PACKAGE TYPE** - AS - IS