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End Matter

JMASM Editors

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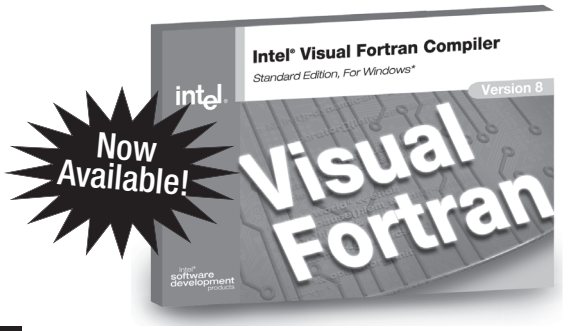
Two Years in the Making...

Intel® Visual Fortran 8.0

The next generation of Visual Fortran is here! Intel Visual Fortran 8.0 was developed jointly by Intel and the former DEC/Compaq Fortran engineering team.



Visual Fortran Timeline

1997 DEC releases Digital Visual Fortran 5.0

1998 Compaq acquires DEC and releases DVF 6.0

1999 Compaq ships CVF 6.1

2001 Compaq ships CVF 6.6

2001 Intel acquires CVF engineering team

2003 Intel releases Intel Visual Fortran 8.0

Intel Visual Fortran 8.0

- CVF front-end + Intel back-end
- Better performance
- OpenMP Support
- Real*16

Performance

Outstanding performance on Intel architecture including Intel® Pentium® 4, Intel® Xeon™ and Intel Itanium® 2 processors, as well as support for Hyper-Threading Technology.

Compatibility

- **Plugs into Microsoft Visual Studio* .NET**
- **Microsoft PowerStation4 language and library support**
- **Strong compatibility with Compaq* Visual Fortran**

Support

1 year of free product upgrades and Intel Premier Support

"The Intel Fortran Compiler 7.0 was first-rate, and Intel Visual Fortran 8.0 is even better. Intel has made a giant leap forward in combining the best features of Compaq Visual Fortran and Intel Fortran. This compiler... continues to be a 'must-have' tool for any Twenty-First Century Fortran migration or software development project."

—Dr. Robert R. Trippi
Professor Computational Finance
University of California, San Diego

FREE trials available at:
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Programmer's Paradise®

To order or request additional information call:
800-423-9990
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PASS 2002

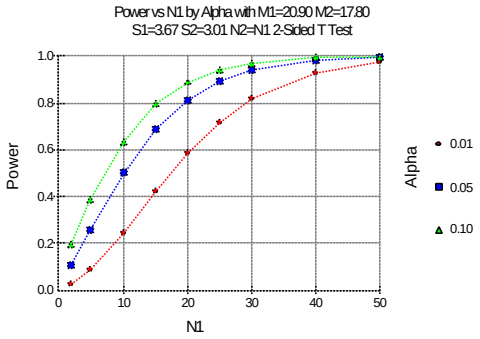
Power Analysis and Sample Size Software from NCSS

PASS performs power analysis and calculates sample sizes. Use it before you begin a study to calculate an appropriate sample size (it meets the requirements of government agencies that want technical justification of the sample size you have used). Use it after a study to determine if your sample size was large enough. ***PASS*** calculates the sample sizes necessary to perform all of the statistical tests listed below.

A power analysis usually involves several "what if" questions. ***PASS*** lets you solve for power, sample size, effect size, and alpha level. It automatically creates appropriate tables and charts of the results.

PASS is accurate. It has been extensively verified using books and reference articles. Proof of the accuracy of each procedure is included in the extensive documentation.

PASS is a standalone system. Although it is integrated with ***NCSS***, you do not have to own ***NCSS*** to run it. You can use it with any statistical software you want.



PASS comes with two manuals that contain tutorials, examples, annotated output, references, formulas, verification, and complete instructions on each procedure. And, if you cannot find an answer in the manual, our free technical support staff (which includes a PhD statistician) is available.

System Requirements

PASS runs on Windows 95/98/ME/NT/ 2000/XP with at least 32 megs of RAM and 30 megs of hard disk space.

PASS sells for as little as **$449.95**.

***PASS* Beats the Competition!**

No other program calculates sample sizes and power for as many different statistical procedures as does *PASS*. Specifying your input is easy, especially with the online help and manual.

PASS automatically displays charts and graphs along with numeric tables and text summaries in a portable format that is cut and paste compatible with all word processors so you can easily include the results in your proposal.

Choose ***PASS***. It's more comprehensive, easier-to-use, accurate, and less expensive than any other sample size program on the market.

Trial Copy Available

You can try out ***PASS*** by downloading it from our website. This trial copy is good for 30 days. We are sure you will agree that it is the easiest and most comprehensive power analysis and sample size program available.

Analysis of Variance
Factorial AOV
Fixed Effects AOV
Geisser-Greenhouse
MANOVA*
Multiple Comparisons*
One-Way AOV
Planned Comparisons
Randomized Block AOV
New Repeated Measures AOV*

Regression / Correlation
Correlations (one or two)
Cox Regression*
Logistic Regression
Multiple Regression
Poisson Regression*
Intraclass Correlation
Linear Regression

Proportions
Chi-Square Test
Confidence Interval
Equivalence of McNemar*
Equivalence of Proportions
Fisher's Exact Test
Group Sequential Proportions
Matched Case-Control
McNemar Test
Odds Ratio Estimator
One-Stage Designs*
Proportions – 1 or 2
Two Stage Designs (Simon's)
Three-Stage Designs*

Miscellaneous Tests
Exponential Means – 1 or 2*
ROC Curves – 1 or 2*
Variances – 1 or 2

T Tests
Cluster Randomization
Confidence Intervals
Equivalence T Tests
Hotelling's T-Squared*
Group Sequential T Tests
Mann-Whitney Test
One-Sample T-Tests
Paired T-Tests
Standard Deviation Estimator
Two-Sample T-Tests
Wilcoxon Test

Survival Analysis
Cox Regression*
Logrank Survival -Simple
Logrank Survival - Advanced*
Group Sequential - Survival
Post-Marketing Surveillance
ROC Curves – 1 or 2*

Group Sequential Tests
Alpha Spending Functions
Lan-DeMets Approach
Means
Proportions
Survival Curves

Equivalence
Means
Proportions
Correlated Proportions*

Miscellaneous Features
Automatic Graphics
Finite Population Corrections
Solves for any parameter
Text Summary
Unequal N's

***New in PASS 2002**

NCSS Statistical Software • 329 North 1000 East • Kaysville, Utah 84037
Internet (download free demo version): http://www.ncss.com • Email: sales@ncss.com
Toll Free: (800) 898-6109 • Tel: (801) 546-0445 • Fax: (801) 546-3907

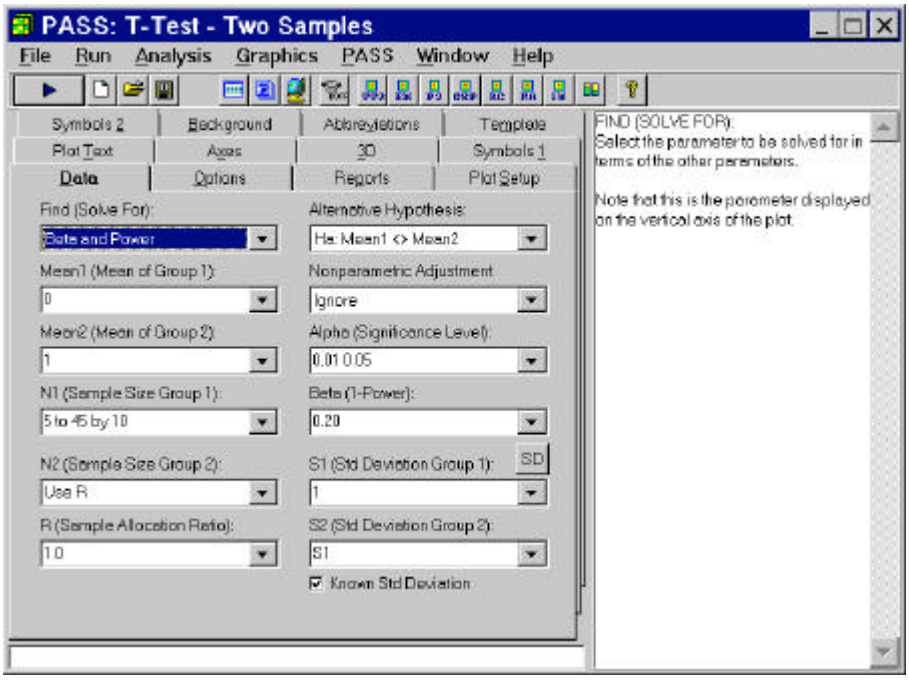
PASS 2002 adds power analysis and sample size to your statistical toolbox

WHAT'S NEW IN PASS 2002?
Thirteen new procedures have been added to ***PASS*** as well as a new home-base window and a new Guide Me facility.

MANY NEW PROCEDURES
The new procedures include a new multi-factor repeated measures program that includes multivariate tests, Cox proportional hazards regression, Poisson regression, MANOVA, equivalence testing when proportions are correlated, multiple comparisons, ROC curves, and Hotelling's T-squared.

TEXT STATEMENTS
The text output translates the numeric output into easy-to-understand sentences. These statements may be transferred directly into your grant proposals and reports.

GRAPHICS
The creation of charts and graphs is easy in ***PASS***. These charts are easily transferred into other programs such as MS PowerPoint and MS Word.



NEW USER'S GUIDE II
A new, 250-page manual describes each new procedure in detail. Each chapter contains explanations, formulas, examples, and accuracy verification.

The complete manual is stored in PDF format on the CD so that you can read and printout your own copy.

GUIDE ME
The new *Guide Me* facility makes it easy for first time users to enter parameter values. The program literally steps you through those options that are necessary for the sample size calculation.

NEW HOME BASE
A new home base window has been added just for PASS users. This window helps you select the appropriate program module.

COX REGRESSION
A new Cox regression procedure has been added to perform power analysis and sample size calculation for this important statistical technique.

REPEATED MEASURES
A new repeated-measures analysis module has been added that lets you analyze designs with up to three grouping factors and up to three repeated factors. The analysis includes both the univariate F test and three common multivariate tests including Wilks Lambda.

RECENT REVIEW
In a recent review, 17 of 19 reviewers selected ***PASS*** as the program they would recommend to their colleagues.

PASS calculates sample sizes for...

Please rush me my own personal license of ***PASS 2002.***

Qty

___ **PASS 2002 Deluxe** (CD and User's Guide)**:** $499.95.....$ _____

___ **PASS 2002 CD (electronic documentation):** $449.95.....$ _____

___ **PASS 2002 5-User Pack (CD & 5 licenses):** $1495.00.....$ _____

___ **PASS 2002 25-User Pack (CD & 25 licenses):** $3995.00....$ _____

___ **PASS 2002 User's Guide II (printed manual):** $30.00.....$ _____

___ **PASS 2002 Upgrade CD** for *PASS 2000* users**:** $149.95.....$ _____

Typical Shipping & Handling: USA: $9 regular, $22 2-day, $33 overnight. Canada: $19 Mail. Europe: $50 Fedex.....$ _____

Total: .....$ _____

FOR FASTEST DELIVERY, ORDER ONLINE AT

WWW.NCSS.COM

Email your order to sales@ncss.com
Fax your order to (801) 546-3907
NCSS, 329 North 1000 East, Kaysville, UT 84037
(800) 898-6109 or (801) 546-0445

My Payment Options:

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___ Please charge my: __VISA __MasterCard __Amex
___ Purchase order enclosed

Card Number
_____Expires_____

Signature_____
Please provide daytime phone:

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Ship my *PASS 2002* to:

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COMPANY

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CITY/STATE/ZIP

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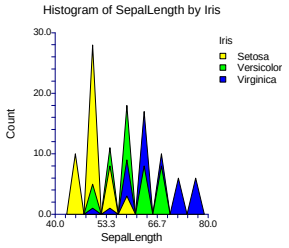
Kaysville, Utah 84037



Announcing NCSS 2004
Seventeen New Procedures

NCSS 2004 is a new edition of our popular statistical **NCSS** package that adds seventeen new procedures.

New Procedures
Two Independent Proportions
Two Correlated Proportions
One-Sample Binary Diagnostic Tests
Two-Sample Binary Diagnostic Tests
Paired-Sample Binary Diagnostic Tests
Cluster Sample Binary Diagnostic Tests
Meta-Analysis of Proportions
Meta-Analysis of Correlated Proportions
Meta-Analysis of Means
Meta-Analysis of Hazard Ratios
Curve Fitting
Tolerance Intervals
Comparative Histograms
ROC Curves
Elapsed Time Calculator
T-Test from Means and SD's
Hybrid Appraisal (Feedback) Model

Documentation
The printed, 330-page manual, called ***NCSS User's Guide V***, is available for $29.95. An electronic (pdf) version of the manual is included on the distribution CD and in the Help system.

Two Proportions
Several new exact and asymptotic techniques were added for hypothesis testing (null, noninferiority, equivalence) and calculating confidence intervals for the difference, ratio, and odds ratio. Designs may be independent or paired. Methods include: Farrington & Manning, Gart & Nam, Conditional & Unconditional Exact, Wilson's Score, Miettinen & Nurminen, and Chen.

Meta-Analysis
Procedures for combining studies measuring paired proportions, means, independent proportions, and hazard ratios are available. Plots include the forest plot, radial plot, and L'Abbe plot. Both fixed and random effects models are available for combining the results.

Curve Fitting
This procedure combines several of our curve fitting programs into one module. It adds many new models such as Michaelis-Menten. It analyzes curves from several groups. It compares fitted models across groups using computer-intensive randomization tests. It computes bootstrap confidence intervals.

Tolerance Intervals
This procedure calculates one and two sided tolerance intervals using both distribution-free (nonparametric) methods and normal distribution (parametric) methods. Tolerance intervals are bounds between which a given percentage of a population falls.

Comparative Histogram
This procedure displays a comparative histogram created by interspersing or overlaying the individual histograms of two or more groups or variables. This allows the direct comparison of the distributions of several groups.

Random Number Generator
Matsumoto's Mersenne Twister random number generator (cycle length > 10**6000) has been implemented.

Binary Diagnostic Tests
Four new procedures provide the specialized analysis necessary for diagnostic testing with binary outcome data. These provide appropriate specificity and sensitivity output. Four experimental designs can be analyzed including independent or paired groups, comparison with a gold standard, and cluster randomized.

ROC Curves
This procedure generates both binormal and empirical (nonparametric) ROC curves. It computes comparative measures such as the whole, and partial, area under the ROC curve. It provides statistical tests comparing the AUC's and partial AUC's for paired and independent sample designs.

Hybrid (Feedback) Model
This new edition of our hybrid appraisal model fitting program includes several new optimization methods for calibrating parameters including a new genetic algorithm. Model specification is easier. Binary variables are automatically generated from class variables.

Statistical Innovations Products
Through a *special arrangement* with Statistical Innovations (S.I.), NCSS customers will receive $100 discounts on:

Latent GOLDÒ - latent class modeling
SI-CHAIDÒ - segmentation trees
GOLDMineRÒ - ordinal regression

For demos and other info visit:
www.statisticalinnovations.com

Please rush me the following products:

Qty

___ **NCSS 2004 CD upgrade from NCSS 2001**, $149.95 ..... $_____

___ **NCSS 2004 User's Guide V**, $29.95..... $_____

___ **NCSS 2004 CD, upgrade from earlier versions**, $249.95..... $_____

___ **NCSS 2004 Deluxe (CD and Printed Manuals),** $599.95..... $_____

___ **PASS 2002 Deluxe**, $499.95 ..... $_____

___ **Latent Gold® from S.I.,** $995 - $100 NCSS Discount = $895..... $_____

___ **GoldMineR® from S.I.**, $695 - $100 NCSS Discount = $595 ..... $_____

___ **CHAID® Plus from S.I.,** $695 - $100 NCSS Discount = $595.... $_____

Approximate shipping--depends on which manuals are ordered (U.S: $10 ground, $18 2-day, or $33 overnight) (Canada $24) (All other countries $10) (Add $5 U.S. or $40 International for any S.I. product) ..... $_____

Total..... $_____

TO PLACE YOUR ORDER

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MAIL: NCSS, 329 North 1000 East, Kaysville, UT 84037

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___ Purchase order attached_____

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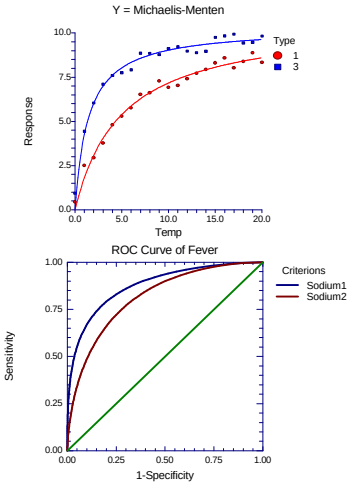
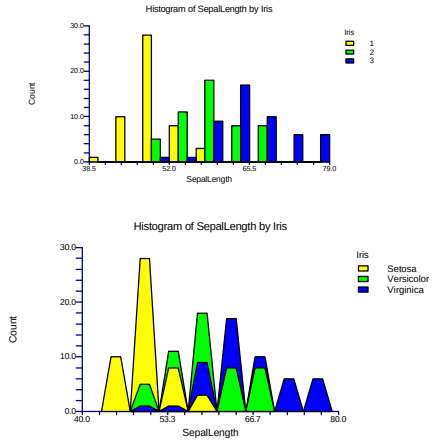
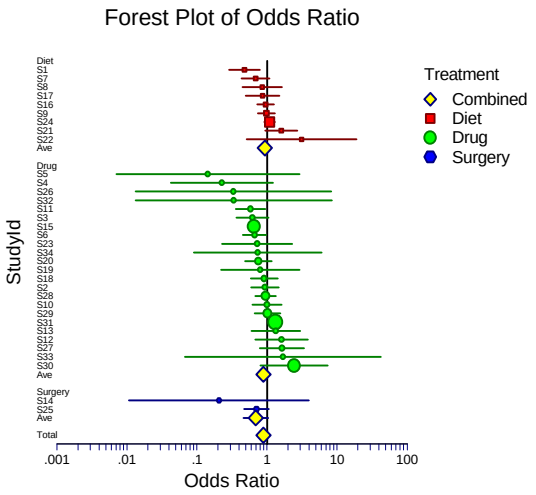
CITY _____ STATE _____

ZIP/POSTAL CODE _____ COUNTRY _____







Statistical and Graphics Procedures Available in NCSS 2004

Analysis of Variance / T-Tests
Analysis of Covariance
Analysis of Variance
Barlett Variance Test
Crossover Design Analysis
Factorial Design Analysis
Friedman Test
Geiser-Greenhouse Correction
General Linear Models
Mann-Whitney Test
MANOVA
Multiple Comparison Tests
One-Way ANOVA
Paired T-Tests
Power Calculations
Repeated Measures ANOVA
T-Tests – One or Two Groups
T-Tests – From Means & SD's
Wilcoxon Test

Time Series Analysis
ARIMA / Box - Jenkins
Decomposition
Exponential Smoothing
Harmonic Analysis
Holt - Winters
Seasonal Analysis
Spectral Analysis
Trend Analysis

Plots / Graphs
Bar Charts
Box Plots
Contour Plot
Dot Plots
Error Bar Charts
Histograms
Histograms: Combined*
Percentile Plots
Pie Charts
Probability Plots
ROC Curves*
Scatter Plots
Scatter Plot Matrix
Surface Plots
Violin Plots

Experimental Designs
Balanced Inc. Block
Box-Behnken
Central Composite
D-Optimal Designs
Fractional Factorial
Latin Squares
Placket-Burman
Response Surface
Screening
Taguchi

Regression / Correlation
All-Possible Search
Canonical Correlation
Correlation Matrices
Cox Regression
Kendall's Tau Correlation
Linear Regression
Logistic Regression
Multiple Regression
Nonlinear Regression
PC Regression
Poisson Regression
Response-Surface
Ridge Regression
Robust Regression
Stepwise Regression
Spearman Correlation
Variable Selection

Quality Control
Xbar-R Chart
C, P, NP, U Charts
Capability Analysis
Cusum, EWMA Chart
Individuals Chart
Moving Average Chart
Pareto Chart
R & R Studies

Survival / Reliability
Accelerated Life Tests
Cox Regression
Cumulative Incidence
Exponential Fitting
Extreme-Value Fitting
Hazard Rates
Kaplan-Meier Curves
Life-Table Analysis
Lognormal Fitting
Log-Rank Tests
Probit Analysis
Proportional-Hazards
Reliability Analysis
Survival Distributions
Time Calculator*
Weibull Analysis

Multivariate Analysis
Cluster Analysis
Correspondence Analysis
Discriminant Analysis
Factor Analysis
Hotelling's T-Squared
Item Analysis
Item Response Analysis
Loglinear Models
MANOVA
Multi-Way Tables
Multidimensional Scaling
Principal Components

Curve Fitting
Bootstrap C.I.'s*
Built-In Models
Group Fitting and Testing*
Model Searching
Nonlinear Regression
Randomization Tests*
Ratio of Polynomials
User-Specified Models

Miscellaneous
Area Under Curve
Bootstrapping
Chi-Square Test
Confidence Limits
Cross Tabulation
Data Screening
Fisher's Exact Test
Frequency Distributions
Mantel-Haenszel Test
Nonparametric Tests
Normality Tests
Probability Calculator
Proportion Tests
Randomization Tests
Tables of Means, Etc.
Trimmed Means
Univariate Statistics

Meta-Analysis*
Independent Proportions*
Correlated Proportions*
Hazard Ratios*
Means*

Binary Diagnostic Tests*
One Sample*
Two Samples*
Paired Samples*
Clustered Samples*

Proportions
Tolerance Intervals*
Two Independent*
Two Correlated*
Exact Tests*
Exact Confidence Intervals*
Farrington-Manning*
Fisher Exact Test
Gart-Nam* Method
McNemar Test
Miettinen-Nurminen*
Wilson's Score* Method
Equivalence Tests*
Noninferiority Tests*

Mass Appraisal
Comparables Reports
Hybrid (Feedback) Model*
Nonlinear Regression
Sales Ratios

***New Edition in 2004**

Qualitative research has come a long way...

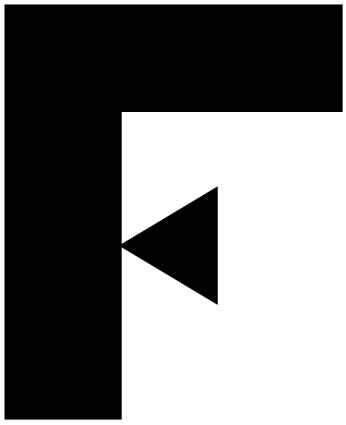
from this...

to this!

Read more about QSR software in this edition of JMASM.

"Perfection is achieved, not when there is nothing more to add, but when there is nothing left to take away."

- Antoine de Saint Exupery



F is a carefully crafted subset of the most recent version of Fortran, the world's most powerful numeric language.

Using F has some very significant advantages:

- Programs written in F will compile with any Fortran compiler
- F is easier to use than other popular programming languages
- ***F compilers are free*** and available for Linux, Windows, and Solaris
- Several books on F are available
- F programs may be linked with C, Fortran 95, or older Fortran 77 programs

F retains the modern features of Fortran—modules and data abstraction, for example—but discards older error-prone facilities of Fortran.

It is a safe and portable programming language.

F encourages Module-Oriented Programming.

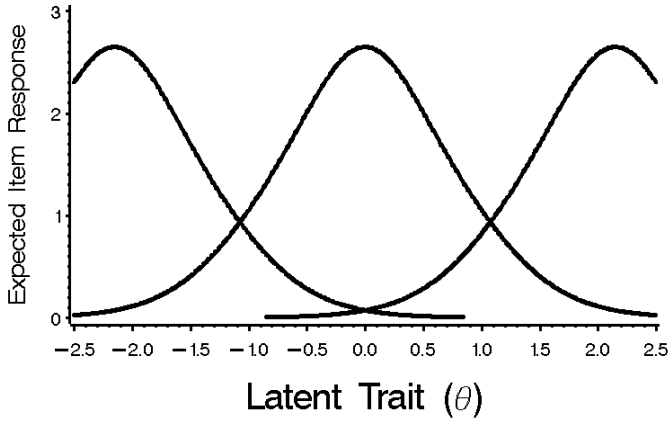
It is ideal for teaching a programming language in science, engineering, mathematics, and finance.

It is ideal for new numerically intensive programs.

The Fortran Company
11155 E. Mountain Gate Place, Tucson, AZ 85749 USA
+1-520-256-1455 +1-520-760-1397 (fax)
http://www.fortran.com info@fortran.com

Introducing GGUM2004

Item Response Theory Models for Unfolding



The new GGUM2004 software system estimates parameters in a family of item response theory (IRT) models that unfold polytomous responses to questionnaire items. These models assume that persons and items can be jointly represented as locations on a latent unidimensional continuum. A single-peaked, nonmonotonic response function is the key feature that distinguishes unfolding IRT models from traditional, "cumulative" IRT models. This response function suggests that a higher item score is more likely to the extent that an individual is located close to a given item on the underlying continuum. Such single-peaked functions are appropriate in many situations including attitude measurement with Likert or Thurstone scales, and preference measurement with stimulus rating scales. This family of models can also be used to determine the locations of respondents in particular developmental processes that occur in stages.

The GGUM2004 system estimates item parameters using marginal maximum likelihood, and person parameters are estimated using an expected *a posteriori* (EAP) technique. The program allows for up to 100 items with 2-10 response categories per item, and up to 2000 respondents. GGUM2004 is compatible with computers running updated versions of Windows 98 SE, Windows 2000, and Windows XP. The software is accompanied by a detailed technical reference manual and a new Windows user's guide. ***GGUM2004 is free*** and can be downloaded from:

http://www.education.umd.edu/EDMS/tutorials

GGUM2004 improves upon its predecessor (GGUM2000) in several important ways:

- It has a user-friendly graphical interface for running commands and displaying output.
- It offers real-time graphics that characterize the performance of a given model.
- It provides new item fit indices with desirable statistical characteristics.
- It allows for missing item responses assuming the data are missing at random.
- It allows the number of response categories to vary across items.
- It estimates model parameters more quickly.

Start putting the power of unfolding IRT models to work in your attitude and preference measurement endeavors. Download your free copy of GGUM2004 today!

WWW.DIGARCH.COM

DIGITAL EXCAVATOR

Are you involved in Data Modeling or Data Mining?

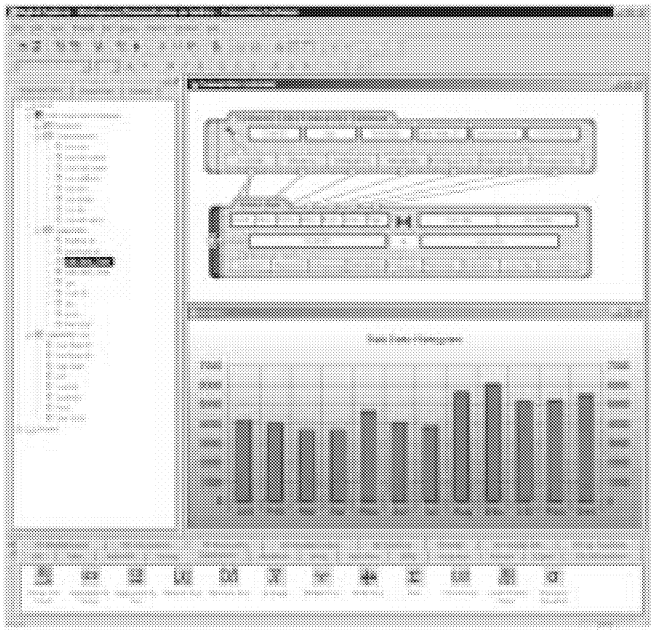
Are you spending a large percentage of your time dealing with data issues?

If so, you will be happy to know that we have developed a tool that specifically addresses the data prep tasks associated with data modeling and data mining. The tool is called the Digital Excavator from Digital Archaeology (www.digarch.com). Data modelers are well aware of the time-consuming and sometimes frustrating nature of data set-up. In many cases data preparation can represent 60%-80% of the data mining project length. With Digital Archaeology's Digital Excavator, data preparation tasks are streamlined, results are more accurate, and the modeler has more time to focus on finding the appropriate mathematical solution--rather than wasting time with painful data issues. Digital Archaeology's software is intuitive, visual, self-documenting, and deploys what a number of analysts and customers have termed the "most elegant" user interface for data analysis and exploration ever conceived. It's the only tool specifically designed for the data prep tasks of data modeling.

Visit our website and see for yourself! >>>> www.digarch.com

Functions have been created which perform the following:

- Frequency Distributions
- Categorical Variable Profile
- Continuous Variable Profile
- Histograms
- De-duping
- Find and Replace Missing Values
- Find and Split Out Outliers
- Binning
- Correlation Matrix
- Cross-Tabs
- Panel Variables (Occupancy Map)
- Lag functions
- Decimal Scaling
- Rank and Sample Variables
- Recency, Frequency, Monetary Analysis
- N-Tile Distributions
- Gains Charts
- Many others



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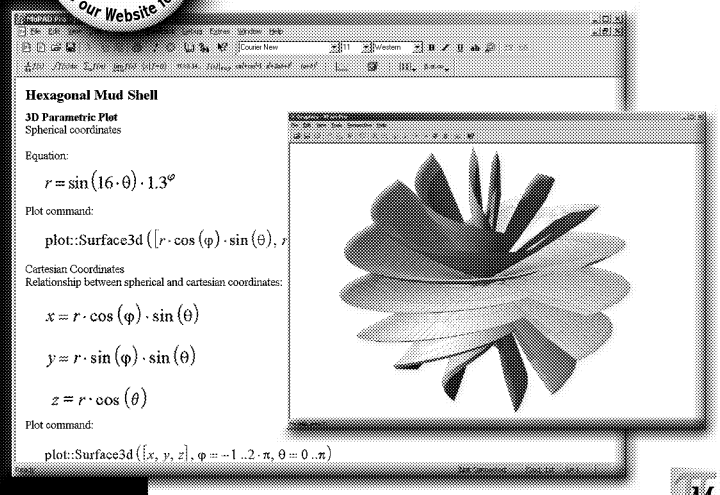
MuPAD® Pro

Version 2.0 — See our Website for details



The Open Computer Algebra System

MacKichan Software is proud to bring you *MuPAD Pro*, a full-featured computer algebra system in an integrated and open environment for symbolic and numeric computing. The *MuPAD* language has a Pascal-like syntax and allows imperative, functional, and object-oriented programming. Its domains and categories are like object-oriented classes that allow over-riding and overloading methods and operators, inheritance, and generic algorithms. A comfortable notebook interface includes a graphics tool for visualization, an integrated source-level debugger, a profiler, and hypertext help.

Scientific WorkPlace, the proven solution for mathematical publishing, is an excellent companion to MuPAD Pro. It integrates with MuPAD so that you can evaluate, simplify, solve, and plot from inside your document, and evaluate functions that you have defined with MuPAD. Best of all, you typeset in LaTeX with just the click of a button.

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Announcing the highly-anticipated new Numerical Recipes products

Numerical Recipes in C++

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Second Edition

William H. Press, Saul A. Teukolsky, William T. Vetterling, and Brian P. Flannery

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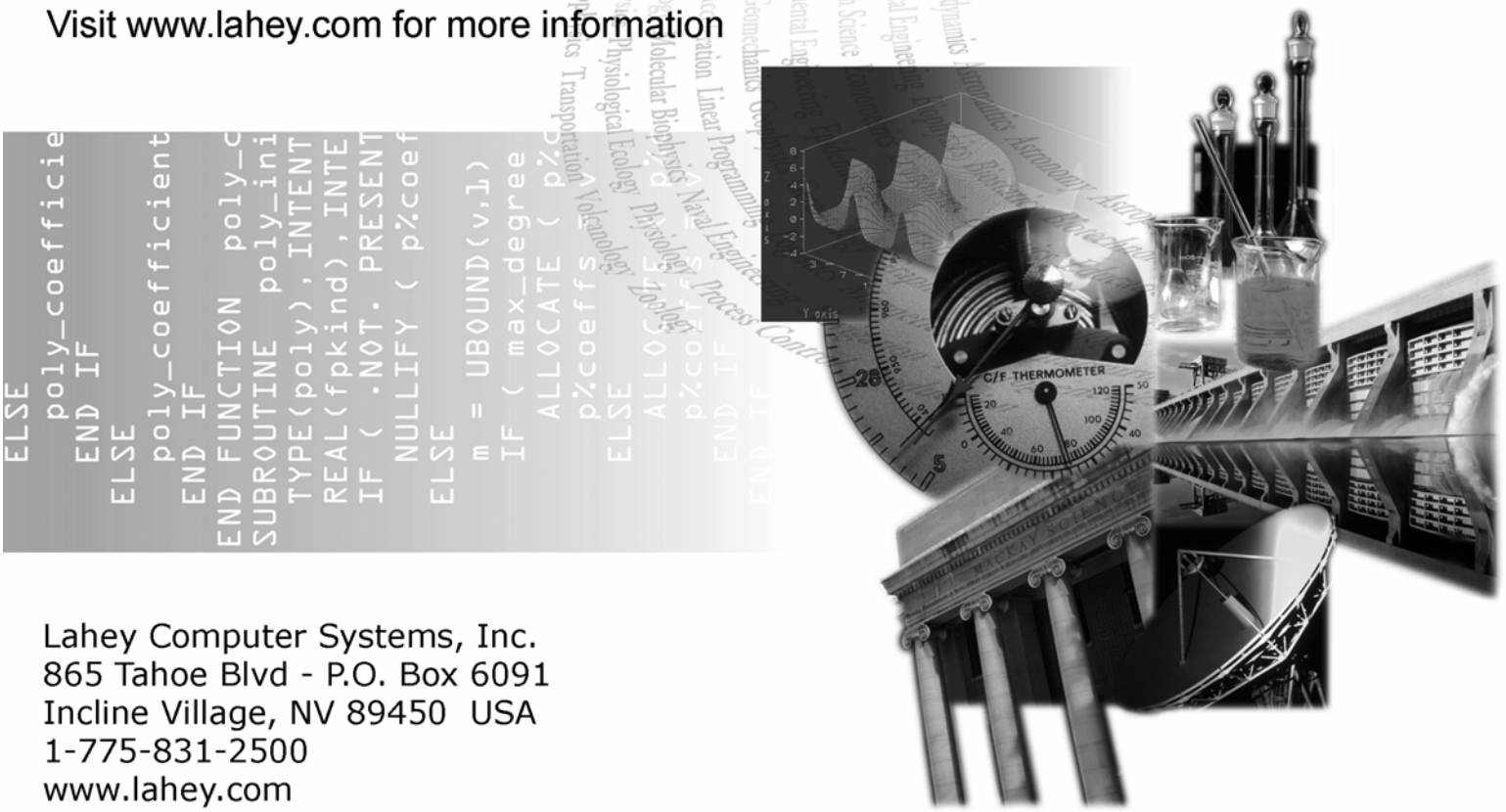

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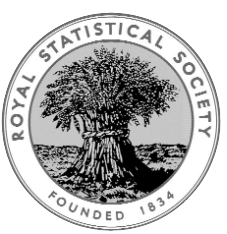

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