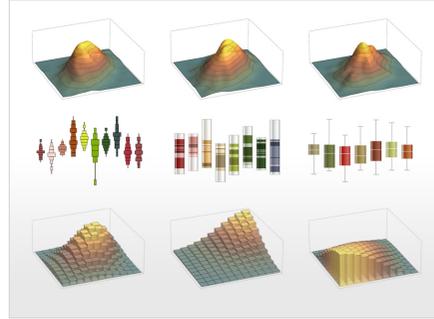


Graphics & Visualization



NEW STATISTICS VISUALIZATIONS

New statistics charts, including box-and-whisker charts, quantile plots, and paired bar charts and histograms, with *Mathematica's* automation and flexibility.

NEW AND IMPROVED VISUALIZATION

New scaling function support for 2D and 3D charts and histograms, new options for applying textures to surfaces and regions, improvements to discrete plots, and more.



INTERACTIVE FINANCIAL CHARTS

Instantly create customized interactive financial charts, applying more than 100 built-in financial indicators to your own data or built-in data feeds.

ENHANCED ILLUSTRATION AND DRAWING TOOLS

Illustrate ideas or annotate graphics using improved drawing tools, including dynamic guides.



ENHANCED 2D AND 3D GRAPHICS

Texture mapping of images to 3D surfaces with full hardware acceleration, built-in curve and filled curve primitives, and other new features.

Interface & User Experience

CELL INSERTION ASSISTANT

Choose different input types and text styles immediately through a new cell insertion assistant.

NEW WELCOME SCREEN

Create new documents, open recent notebooks, learn new features, follow news and events, and more. The Welcome screen is more useful than ever.

ENHANCED WORD PROCESSING CAPABILITIES

A multitude of new features better support everyday use of *Mathematica* for word processing: running heads, print preview, citation management, and end notes.

FOR MORE INFORMATION, PLEASE VISIT

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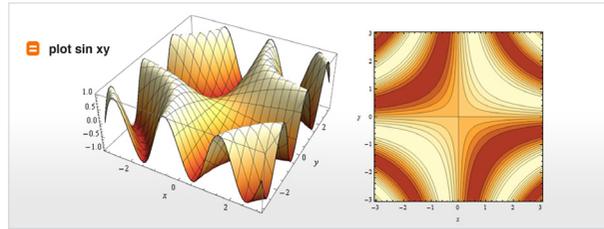
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WHAT'S NEW IN

Wolfram *Mathematica*[®] 8

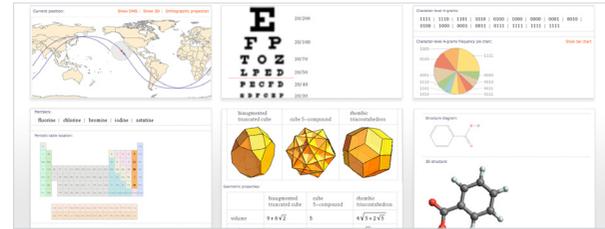
Mathematica 8 introduces free-form linguistic input—a whole new way to compute. Enter plain English; get immediate results—no syntax required. It's a new entry point into the complete *Mathematica* workflow, now upgraded with 500 additional functions and seven application areas—including the world's most advanced statistics capability and state-of-the-art image processing. New workflow end points include deployment of standalone applications or interactive documents.

Integration with WolframAlpha



FREE-FORM LINGUISTIC INPUT

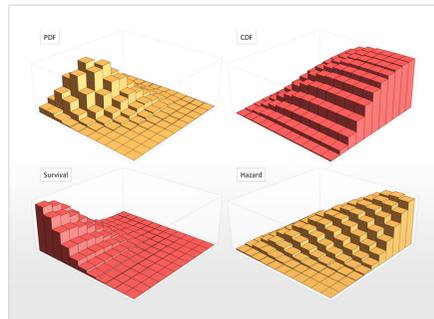
A new way to interact with the power of *Mathematica*: enter plain English; get immediate results and the *Mathematica* input for further exploration.



COMBINE KNOWLEDGE AND COMPUTATION

Inject WolframAlpha's vast knowledge directly into the *Mathematica* workflow, providing curated data for your computations, analysis, and development.

Core Algorithms

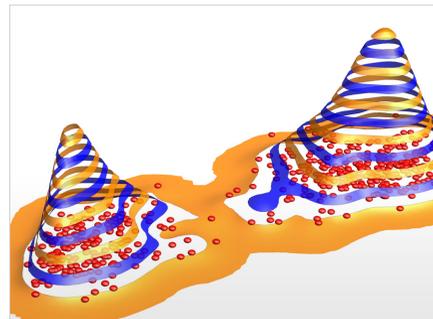


AUTOMATED PROBABILITY AND STATISTICS SUPERFUNCTIONS

New superfunctions automatically compute the probability of any event and the expectation of any expression, estimate distributions from data, or quantify goodness of fit.

PARAMETER ESTIMATION AND TESTING

A new streamlined process for parameter estimation and goodness-of-fit testing for built-in parametric distributions and derived distribution constructors, with automatic selection or user specification of routines.

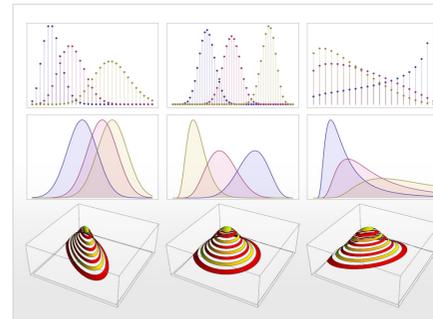


MORE STATISTICAL DISTRIBUTIONS THAN ANY OTHER SYSTEM

Work with 35 properties of 100 new distributions, with specialized coverage of finance, medicine, and engineering. Includes automated parameter estimation.

GROUP THEORY ALGORITHMS

Mathematica 8 introduces new functions for fast manipulation of permutation groups and an extensive collection of operations to explore and visualize their properties.



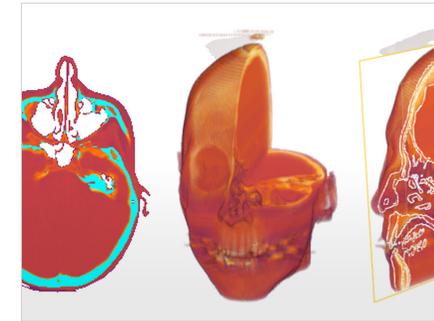
BUILD YOUR OWN DISTRIBUTIONS

Easily define and use new distributions from data, formulas, or other distributions, including copulas, mixtures, order statistics, censoring, truncation, and transforms.

NEW AND IMPROVED CORE ALGORITHMS

Compute with powerful new algorithms for fast and exact linear algebra, integration of oscillatory functions, equation and inequality solving over domains, many special functions, and more.

Application Areas

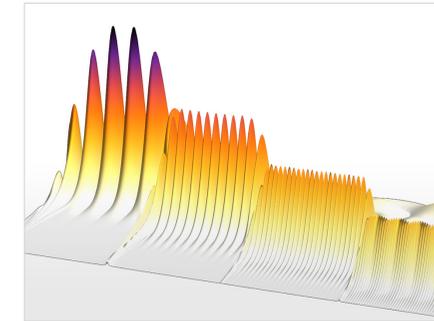


COMPREHENSIVE IMAGE PROCESSING ENVIRONMENT

With many new algorithms added for real-time image acquisition, feature detection, and more, *Mathematica 8* offers a complete environment and interactive workflow for image processing and analysis.

GRAPHS AND NETWORKS

Graphs and networks are now fully integrated into *Mathematica*, including high-performance scalable data structures, advanced aesthetics, and broad modeling and analysis capabilities.

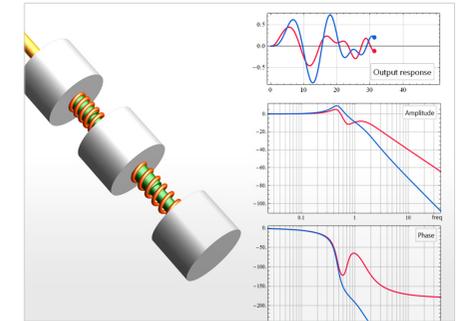


INTEGRATED WAVELET ANALYSIS

Apply discrete or continuous high-performance wavelet analysis for thresholding and visualizing in any dimension.

BUILT-IN FINANCIAL COMPUTATIONS

Perform comprehensive derivative calculations, including exotic option pricing; compute bond values, sensitivity measures, and more; and calculate time value of money with a variety of effective interest rate scenarios.



INTEGRATED CONTROL SYSTEMS DESIGN

Analyze and design control systems using classical and state-space techniques, develop control solutions for analog and digital systems, and simulate models in open- and closed-loop configurations.

NEW IMPORT AND EXPORT FORMATS

Supports the latest Microsoft Excel file format; automatically imports more elevation, satellite, seismology, microarray, graph, and other data formats; and includes plugin architecture for user-defined formats.

Software Development

FAST COMPILED FUNCTIONS

Speed up code execution with the new options of automatic C code generation and linking. New automated parallel execution further multiplies performance on multicore machines.

INTEGRATED C WORKFLOW

Automatically convert compilable *Mathematica* programs into C code, for standalone or integrated use. *Mathematica* directly interfaces to external C compilers for building executables and libraries.

DYNAMIC LIBRARIES

Integrate external dynamic libraries directly into *Mathematica*—enabling high-speed, memory-efficient execution.

CUDA AND OPENCL SUPPORT

Build GPU computation into your *Mathematica* programs using new support for CUDA and OpenCL environments.

MATHEMATICA SHELL SCRIPTS

Use high-level *Mathematica* language to make scripts invoked from the command shell.

OTHER NEW FEATURES

- Scheduled tasks
- Assert support
- Create and extract archive files
- Performance improvements in date format conversions
- Speech output enhancements
- Extract extensions
- Updated regular expression library
- Improved command-line processing

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