

# What's New in *Mathematica* 10

700+ new functions—and that's just the beginning

*Mathematica* celebrated its 25th anniversary in 2013, and is stronger than ever. Leveraging its core principles of automation and unification, it's advancing at an ever-increasing rate.

*Mathematica* 10 introduces a host of new areas—such as machine learning, computational geometry, geographic computation, and device connectivity—as well as deepening capabilities and coverage across the algorithmic world.

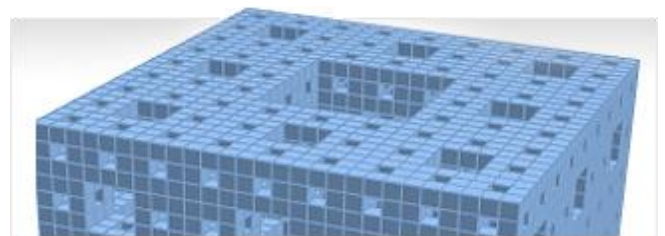
*Mathematica* 10 is the first version of *Mathematica* based on the complete **Wolfram Language**.

## Featured *Mathematica* 10 Areas



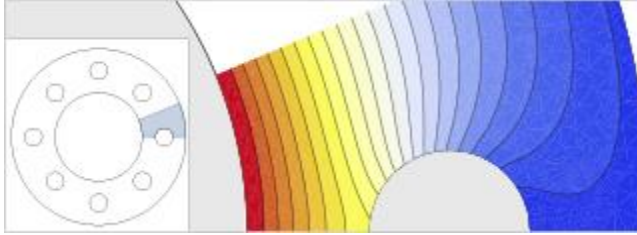
### Mathematical Structures

- Larger-Scale & Extended Algebra »**
- Formal Math Operators »**
- Dimensional Variables »**
- Enhanced Graph Computation »**



### Geometric Computation ALL NEW

- Symbolic Geometry »**
- Named & Formula Regions »**
- Mesh-Based Regions »**

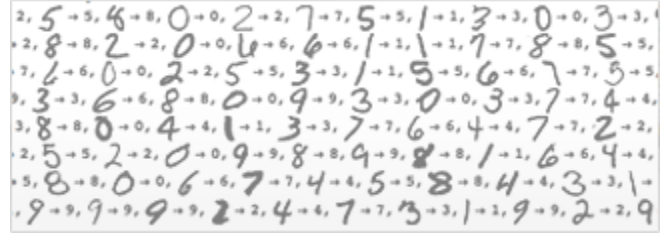


## Differential Equation Solving

**Partial Differential Equations (PDEs) & Finite Elements »**

**Symbolic Delay Differential Equations (DDEs) »**

**Hybrid Differential Equations »**

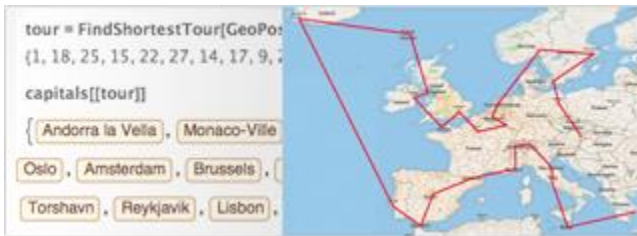


## Machine Learning ALL NEW

**Highly Automated Machine Learning »**

**Built-in Classifier Collection »**

**Automated Time Series Analysis »**

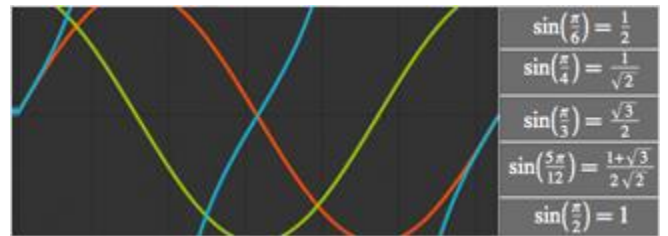


## Structured & Semantic Data

**Semantic Data Import »**

**Domain-Specific Language Interpretation »**

**Dataset & Query Framework »**



## Core Language Enhancements

**Key-Value Associative Arrays »**

**Enhanced Functional Programming »**

**Symbolic Program Manipulation »**

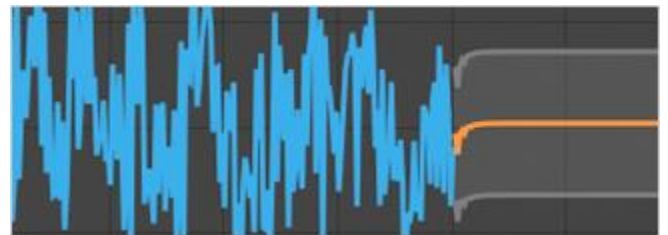


## Geographic Computation ALL NEW

**Geographic Visualization »**

**Geo-Related Properties »**

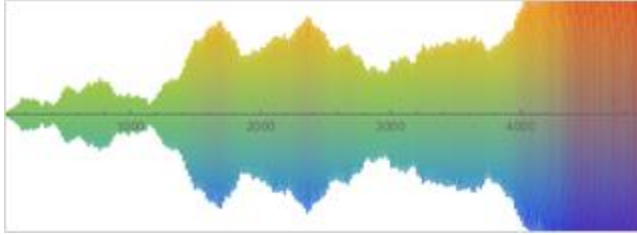
**Entity-Based Geocomputation »**



## Time-Related Computation

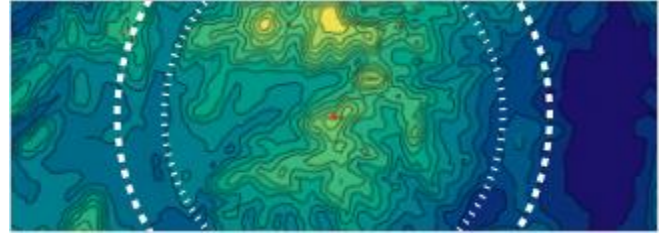
**Symbolic Dates & Times »**

**Time Series Processing »**



## Random Process Analysis

[Hidden Markov Processes & More »](#)  
[Random Time Series »](#)



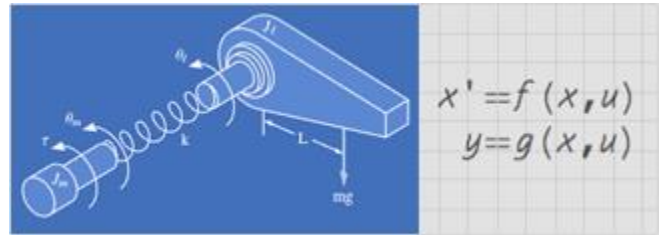
## Visualization & Graphics

[Theme-Based Styling »](#)  
[New Visualization Categories »](#)  
[Geographic Visualization »](#)



## Image Processing

[More 2D Image Processing »](#)  
[More 3D Image Processing »](#)  
[Extended Color Support »](#)



## Engineering Computation

[PDEs & Finite Elements »](#)  
[Nonlinear Control Systems »](#)  
[Enhanced Signal Processing »](#)



## Software Engineering

[String, File, HTML Templating »](#)  
[Automated Report Generation »](#)  
[Integrated Unit Testing »](#)



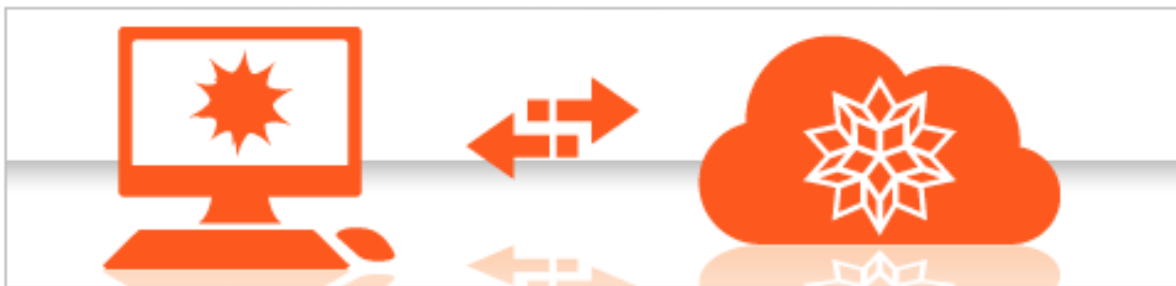
## External Connectivity

[Connected Device Framework »](#)  
[Curated API Framework »](#)  
[URL Manipulation »](#)



## Expanded Wolfram Knowledgebase »

*Mathematica* has access to the full, newly expanded Wolfram Knowledgebase via the Wolfram Language. All *Mathematica* users get free introductory use of the Wolfram Knowledgebase.



## Integration with the Wolfram Cloud »

*Mathematica* 10 connects *Mathematica* to the new Wolfram Cloud ecosystem. *Mathematica* customers get free introductory use of the Wolfram Cloud.