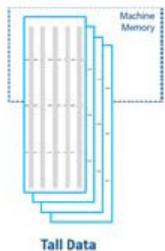


# What's New in MATLAB for Neuroscience

## Tall Arrays for Big Data



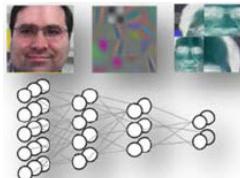
Manipulate and analyze data that is too big to fit in memory (even cluster memory) using the new tall array data type. It behaves like a normal MATLAB® array, but can handle huge datasets. Processing performance scales with parallel and distributed computing.

## Redesigned Execution Engine

Faster in R2015b

Run code faster with the new execution engine in R2015b or later. Improved architecture uses just-in-time (JIT) compilation of all MATLAB code, yielding an average performance improvement of 40% across 76 performance-sensitive applications.

## Deep Learning



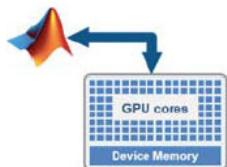
Train deep convolutional neural networks (CNNs) with built-in GPU acceleration for object classification problems. Run trained models with CPUs or GPUs. Apply transfer learning to re-use models for new problems.

## Unlimited Local Parallel Computing



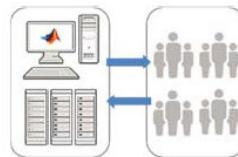
Utilize all of the CPU and GPU cores on a workstation or server node to solve computational and data-intensive problems using Parallel Computing Toolbox™. Parallelize your applications with high-level constructs, without needing CUDA or MPI programming.

## GPU-enabled MATLAB Functions



A growing number of MATLAB functions and Toolbox algorithms have built-in acceleration when run on compatible GPU hardware, using the Parallel Computing Toolbox.

## Third-Party Access for Non-Commercial Use



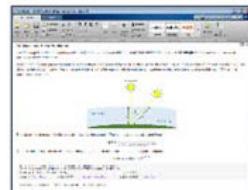
Academic organizations can provide access to MATLAB, MATLAB Distributed Computing Server™, and other products to users outside of their institution, fostering collaborations and joint research initiatives.

## Community Tools on File Exchange



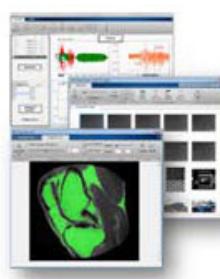
In MATLAB Central, File Exchange entries can link to GitHub repositories. More Neuroscience tools than ever are listed on File Exchange. Many are tagged “neuroscience” for easy searching.

## Live Editor for Computational Narratives



Combine code, output, and formatted text to create an interactive narrative that describes your work. Share your work in a way that can be easily reproduced, validated, and extended by others.

## Apps for Point-and-click Workflows

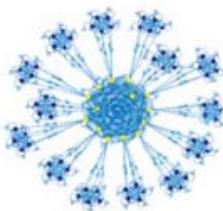


Tackle common tasks interactively, without coding, using apps in MATLAB toolboxes. Generate code from your workflow to reproduce or automate your work.

## What's New in MATLAB:

[www.mathworks.com/products/matlab/whatsnew.html](http://www.mathworks.com/products/matlab/whatsnew.html)

## Graph and Network Algorithms



Construct, annotate, and visualize directed and undirected graphs to model network systems. Search and analyze graphs using a range of network algorithms, such as minimum spanning tree.

### Follow "MATLAB for Neuroscience" on LinkedIn



Occasional news, tailored for neuroscientists

- Neuroscience research highlights
- MATLAB updates relevant to neuroscience

Learn more about MATLAB for Neuroscience:

[www.mathworks.com/solutions/neuroscience](http://www.mathworks.com/solutions/neuroscience)

- Community Toolboxes and Apps
- Connections Partners
- Examples and How-To's
- Videos and Webinars

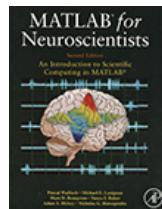
## Find Freely Shared Community Toolboxes and Apps:



Search for "neuroscience" on MATLAB Central File Exchange to find apps and toolboxes tagged for Neuroscience applications.

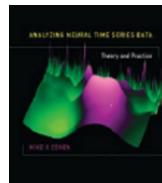
Browse the MATLAB Central File Exchange: [www.mathworks.com/matlabcentral/fileexchange](http://www.mathworks.com/matlabcentral/fileexchange)

### Learn from Books using MATLAB for Neuroscience:



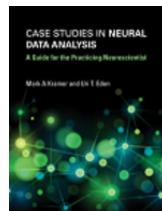
#### **MATLAB for Neuroscientists**

Pascal Wallisch, New York University  
Mike Lusignan, University of Chicago  
Marc Benayoun, University of Chicago  
Tanya I. Baker, The Salk Institute  
Adam S. Dickey, University of Chicago  
Nicho G. Hatsopoulos, University of Chicago



#### **Analyzing Neural Time Series Data**

Mike X Cohen, University of Amsterdam



#### **Case Studies in Neural Data Analysis**

Mark A. Kramer, Boston University  
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