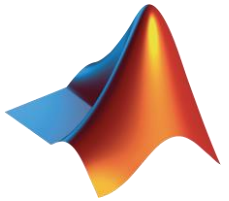
What's new in MATLAB for teaching



MathWorks®

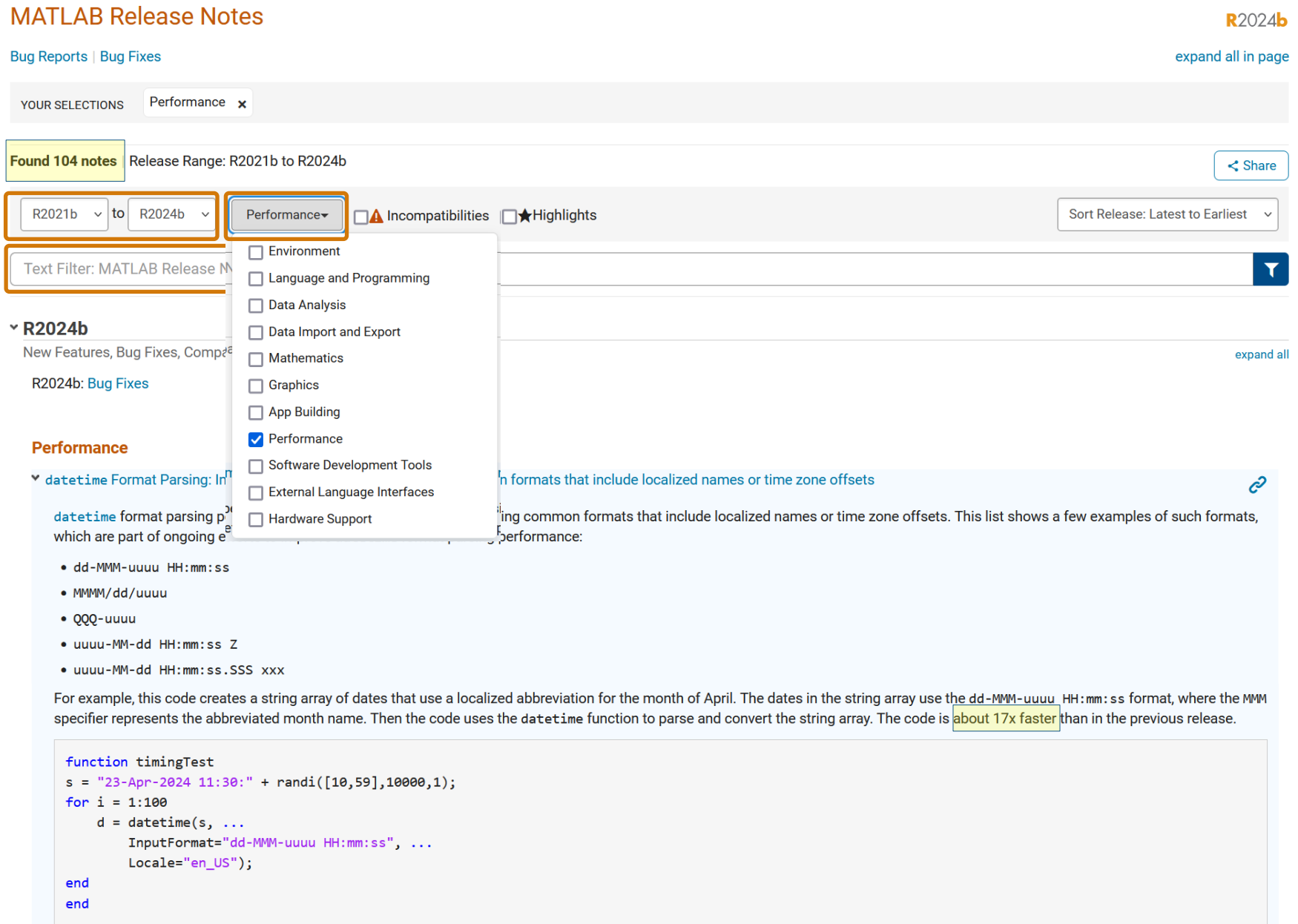
Alex Tarchini
MathWorks
alex@mathworks.com

Our goal is to make MATLAB the easiest and most productive environment for engineers and scientists.

We've released over 7,000 new features and enhancements in just the last 2 years.

See all the details in the Release Notes

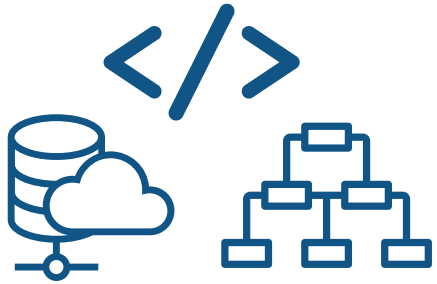
- Filter results by:
  - Release range
  - Category
  - Text filter
  - Incompatibilities
  - Highlights



Four themes for today

Access

Ease of Use



Software Workflows

Integrations

Theme - Access

Access

Ease of Use

Software Workflows

Integrations

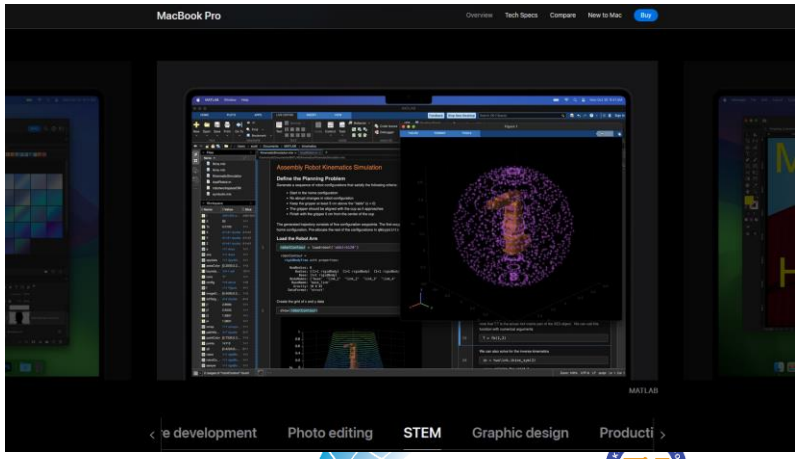
Native support for Apple Silicon

- Run MATLAB natively on M series chips
  - Faster startup time
  - Faster linear algebra
  - Reduced battery usage
  - Reduced memory usage

Apple Release Event – Oct 2023

MacBook Pro promo video

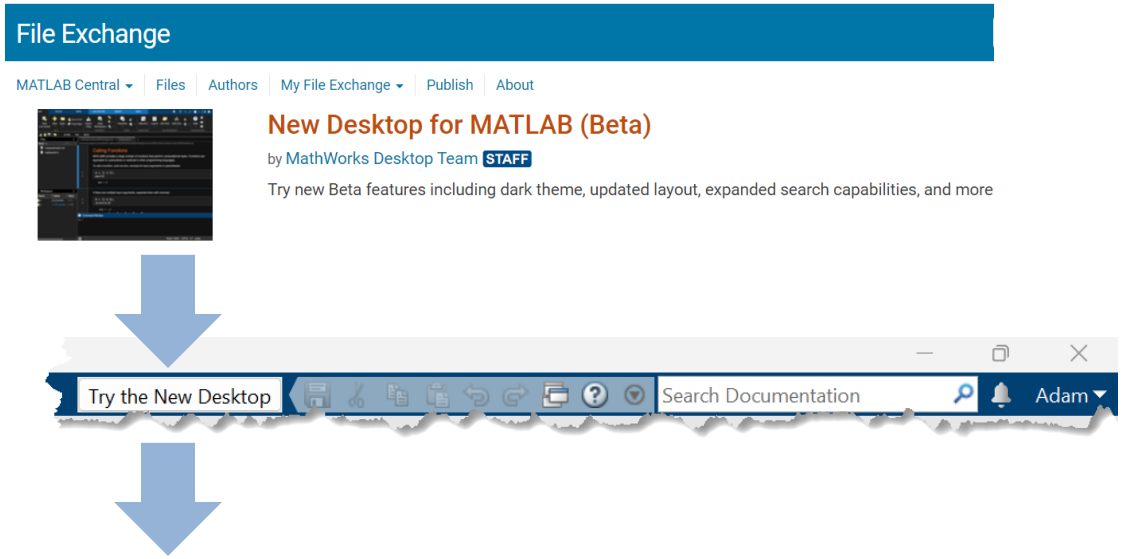
MacBook Pro home page

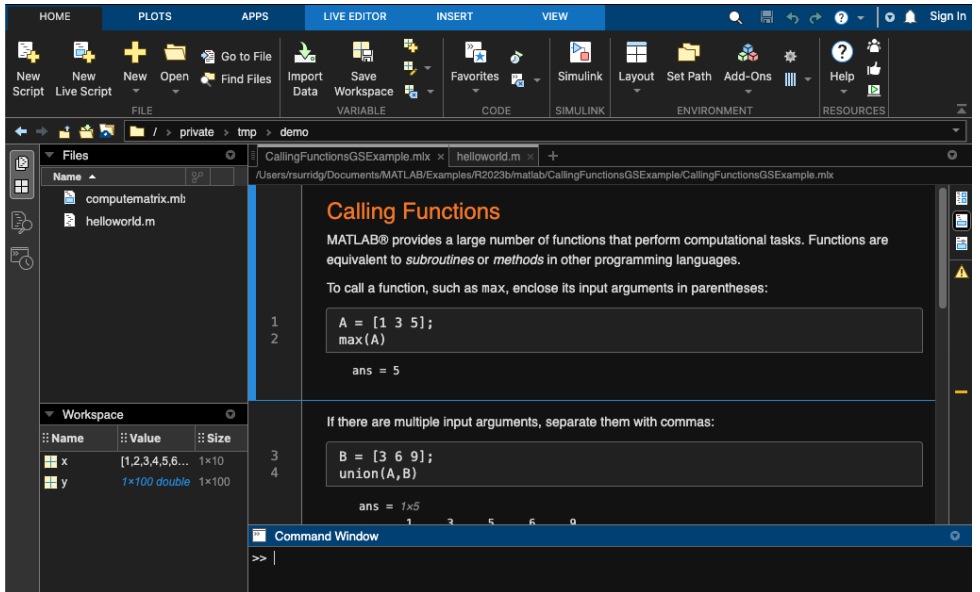


A New Desktop for MATLAB is in open beta

R2024b

- Find on File Exchange or Add-Ons menu
- Previews of upcoming features
- Integrated feedback for functionality requests, performance issues, and bugs

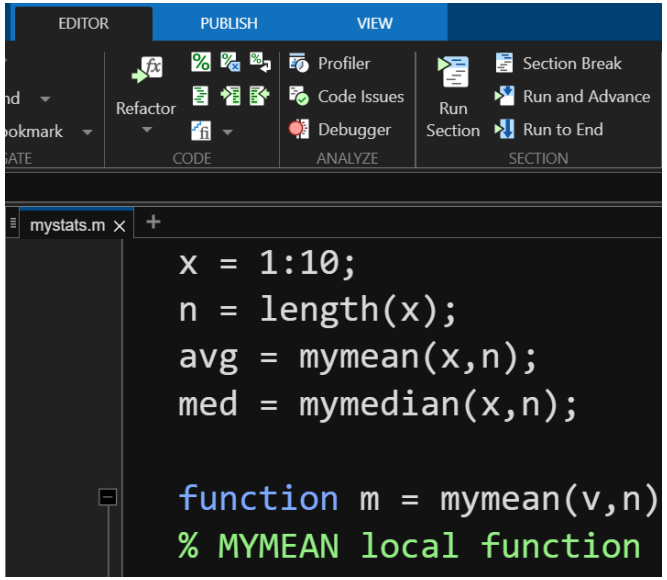




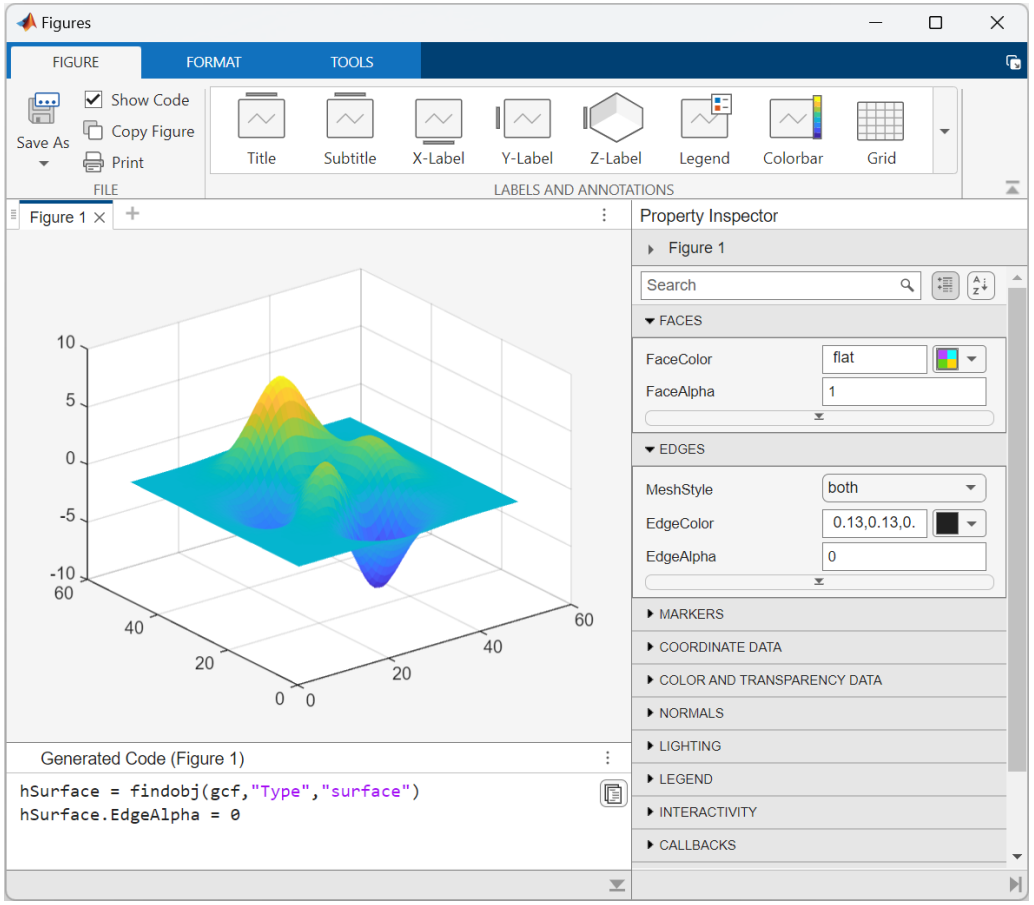
New Desktop unlocks enhanced productivity features

Already available in MATLAB Online

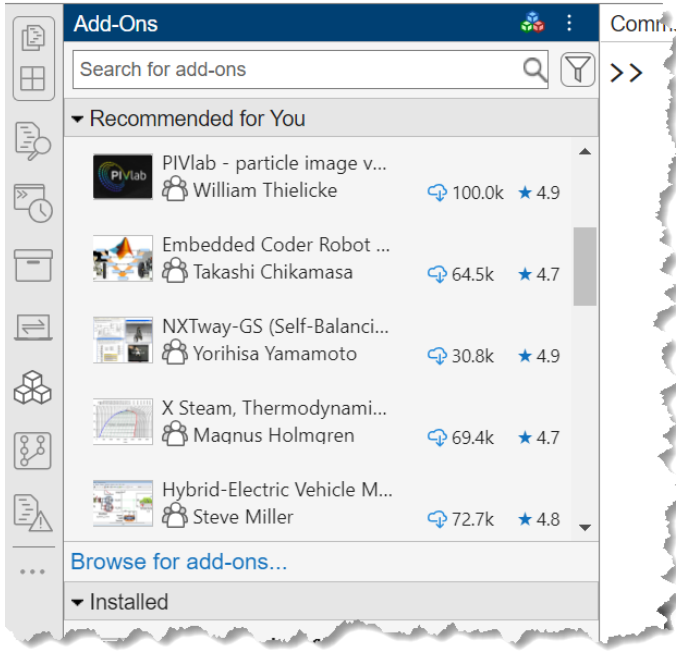
Dark Mode



Enhanced Figure Window



New Side Panels



- Source control
- Debugging
- Add-On management
- Many more…

Theme - Ease of Use

Access

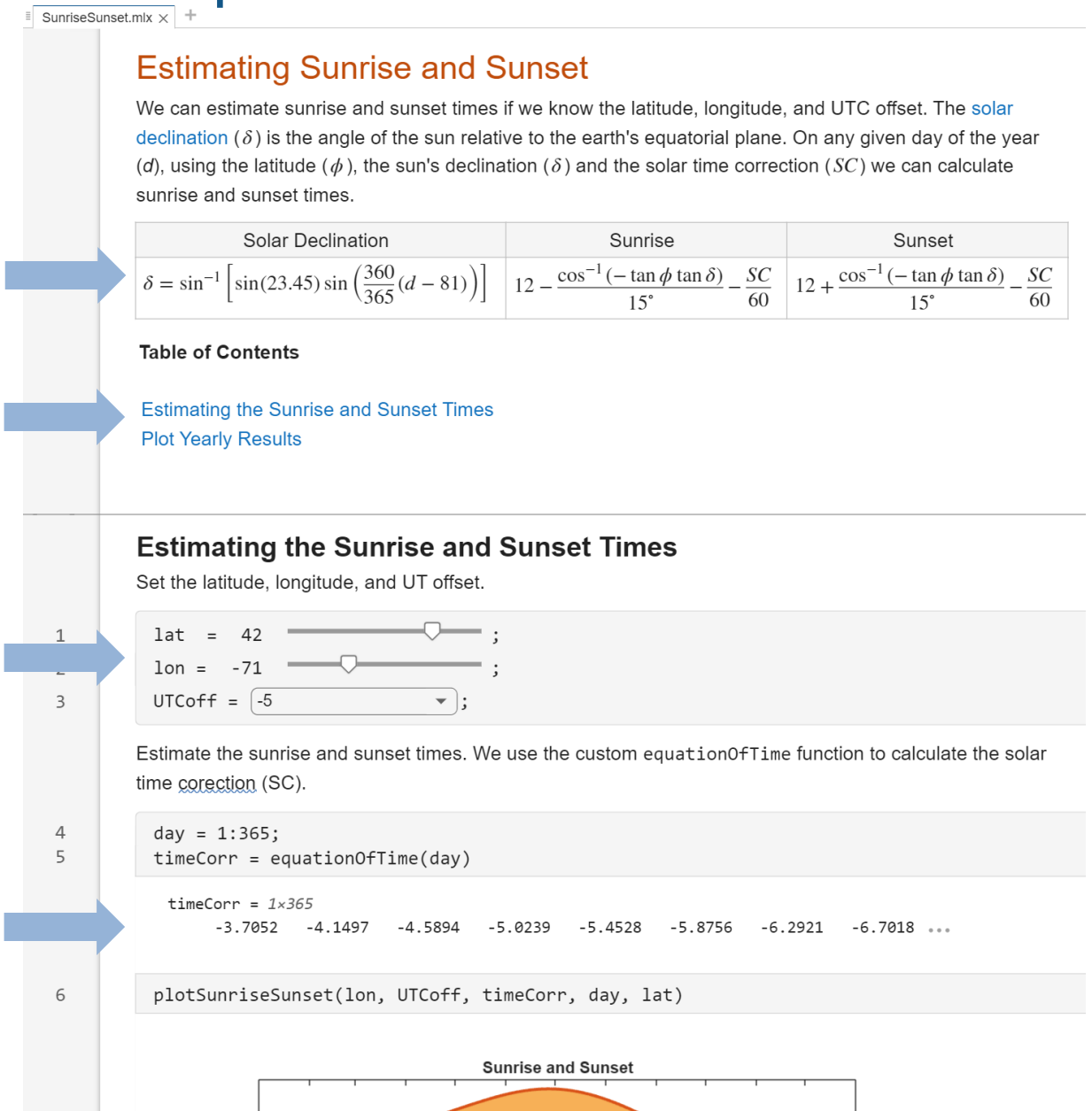
Ease of Use

Software Workflows

Integrations

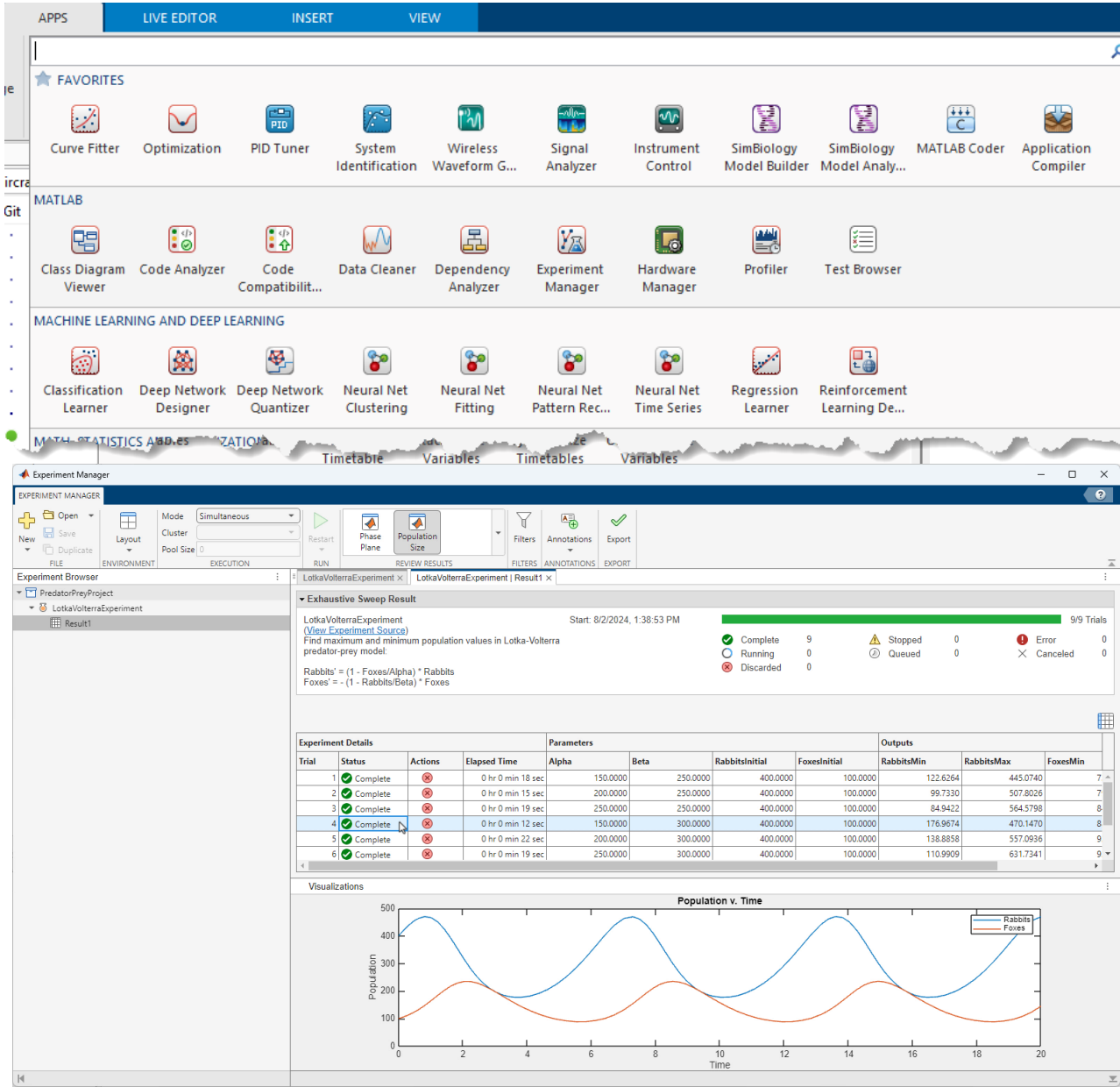
Create interactive, human readable scripts in the Live Editor

- Make scripts readable
  - Richly formatted text
  - Interleave code & output
- Add interactivity
  - Hyperlinks and table of contents
  - Live Controls to adjust parameters
- Share with non-MATLAB users
  - Export as report (pdf, docx, etc.)
  - Share through GitHub and MATLAB Online



Interactively solve tasks and workflows

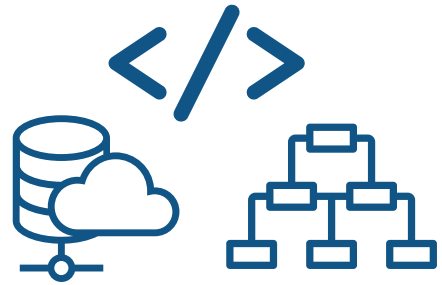
- Live Tasks solve steps within the Live Editor
- Apps solve larger, multi-step workflows
- Generate the code for your solution
- 40+ Live Tasks and 120+ Apps
- Build and share custom Tasks and Apps



Theme - Software Workflows

Access

Ease of Use

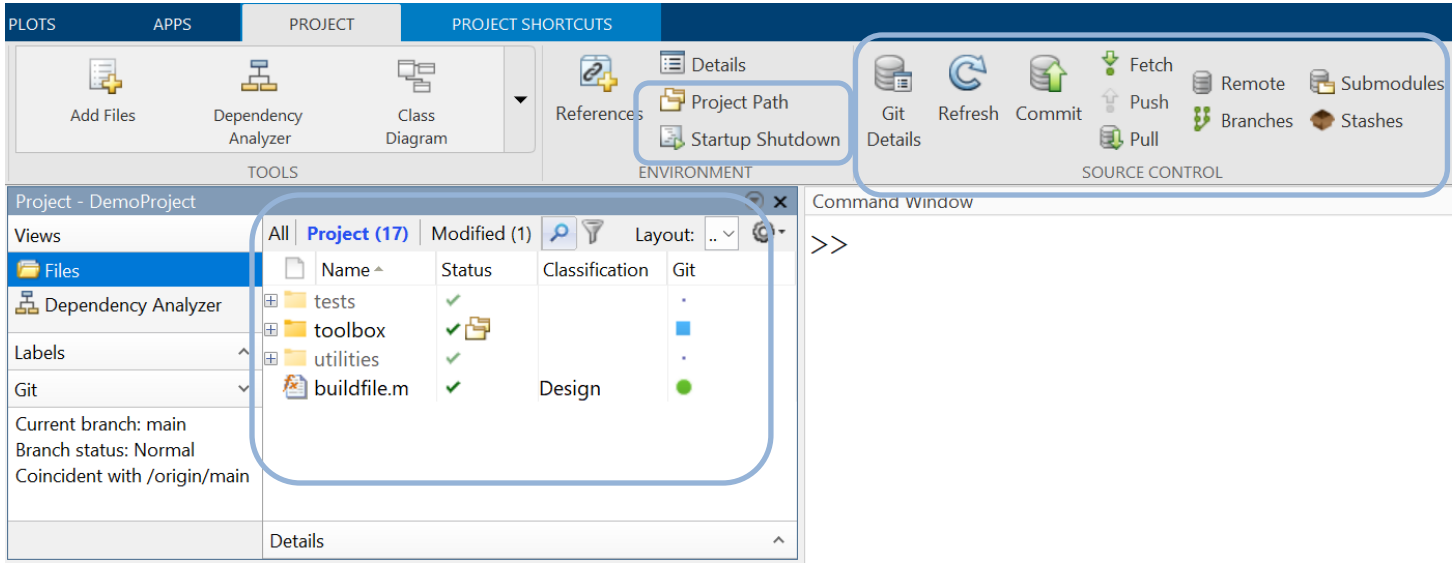


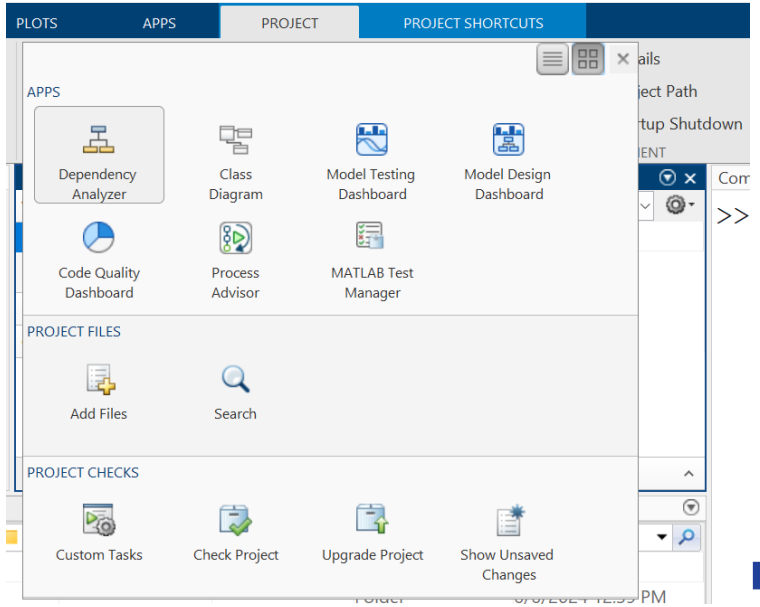
Software Workflows

Integrations

Create reproducible environments with Projects

- Start from the same place every time
  - Tracks all relevant files
  - Set path on opening and restore on closing
  - Automatically execute startup and shutdown activities
- Simplify common workflows
  - Source control integration
  - Code refactoring across project files
- Advanced features
  - Reference projects reuse existing projects
  - Apps to analyze file dependencies
  - File labeling for searching and grouping
  - Project API for scripting actions in projects
  - …





Theme - Integrations

Access

Ease of Use

Software Workflows

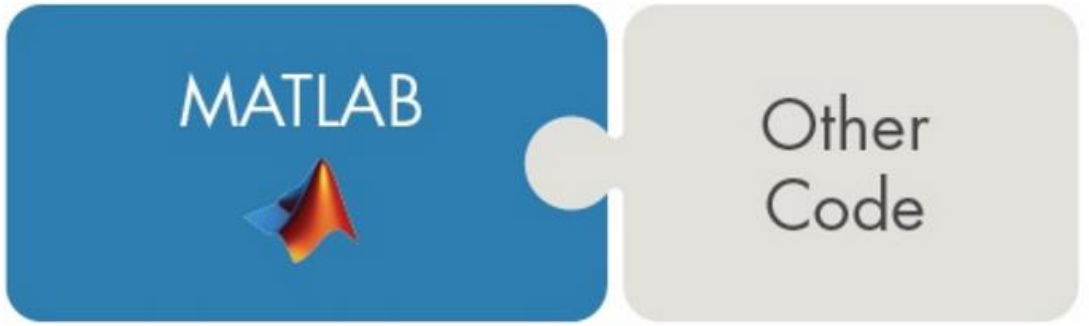
Integrations

Collaborate and integrate using seven bidirectional interfaces

- Co-execute MATLAB with other languages and applications

- Bidirectional interfaces for:
  - Python
  - Java
  - C/C++
  - .NET
  - REST R2024a
  - COM
  - Fortran

Call code and libraries written in another language from MATLAB

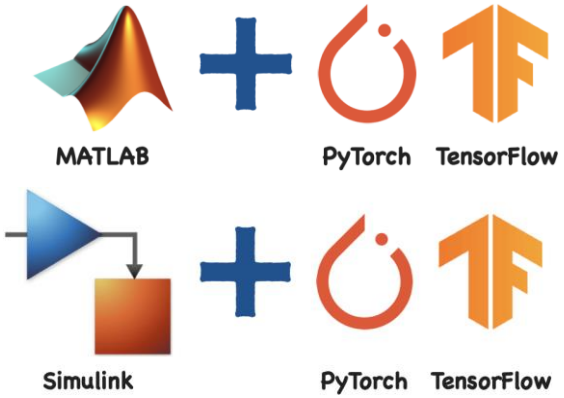


Call MATLAB code from another language

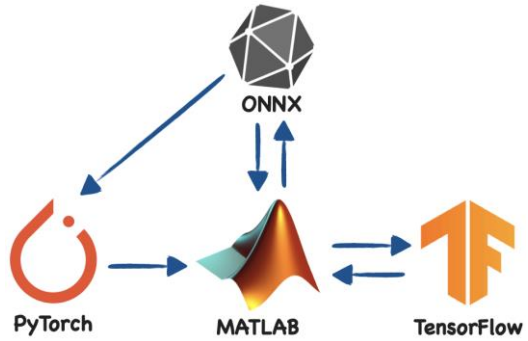
Common use case: combine MATLAB with python for AI

Techniques:

Co-execute

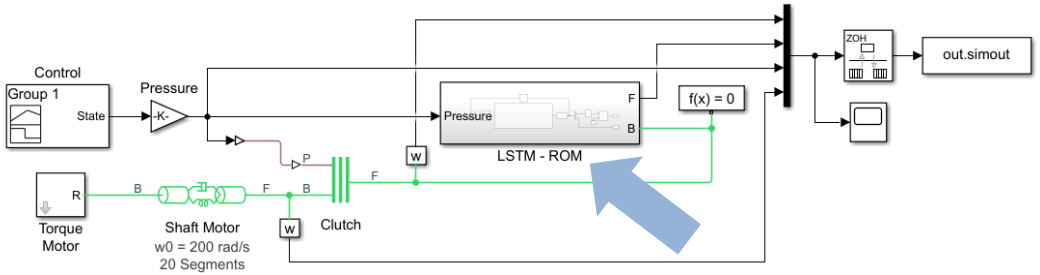


Exchange Models

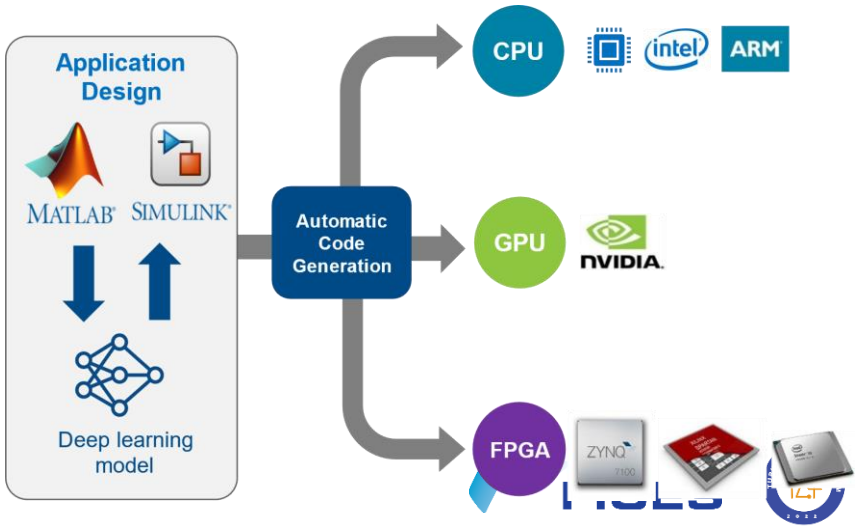


Applications:

Engineering + AI



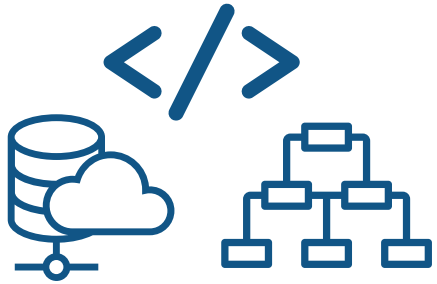
Deploy to Embedded Processors



Where should you go next?

Access

Ease of Use



Software Workflows

Integrations

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Details and launch

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Learn the basics of practical image processing techniques in MATLAB.

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An interactive introduction to practical signal processing methods for spectral analysis.

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An interactive introduction to practical machine learning methods for classification problems.

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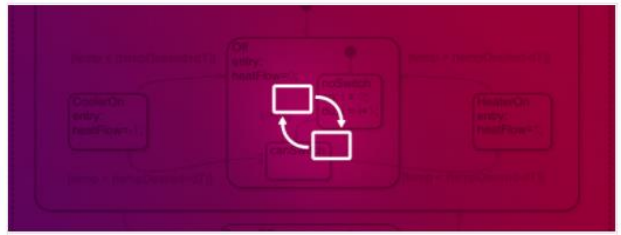
Deep Learning Onramp

Get started quickly using deep learning methods to perform image recognition.

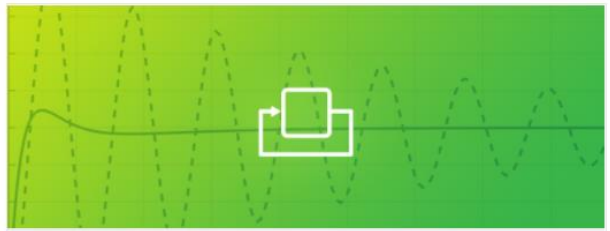
Details and launch



Stateflow Onramp

Learn the basics of creating, editing, and simulating state machines in Stateflow®.

Details and launch



Control Design Onramp with Simulink

Get started quickly with the basics of feedback control design in Simulink.

Details and launch

https://matlabacademy.mathworks.com/

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MATLAB Central

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File Exchange: Download code from a huge repository of free code including **tens of thousands** of open source community files

Cody: Sharpen programming skills while having fun

Blogs: Get the inside view from Engineers who build and support MATLAB & Simulink

ThingSpeak: Explore IoT Data

And more for you to explore…

Thank you

Q&A – 5min

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