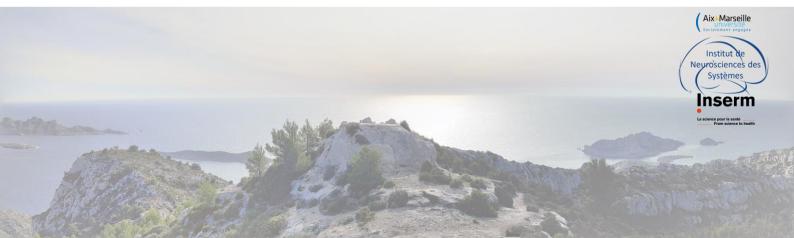
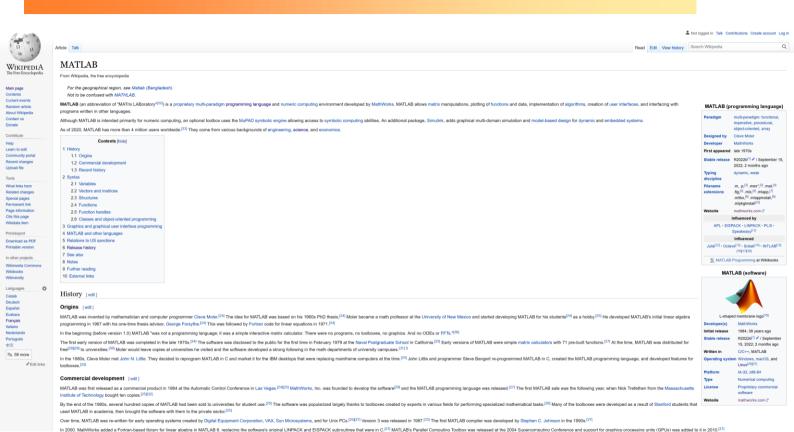


# Matlab

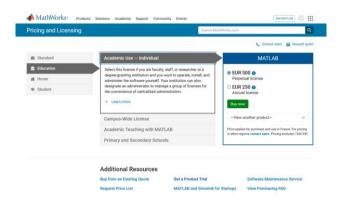
Manuel Mercier

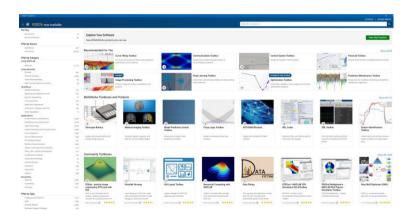


## Matlab: a bit of history

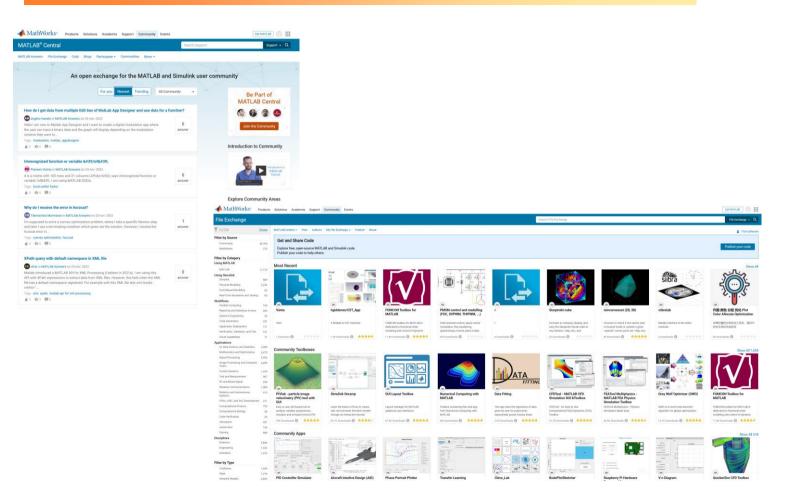


#### Matlab: licence and toolboxes

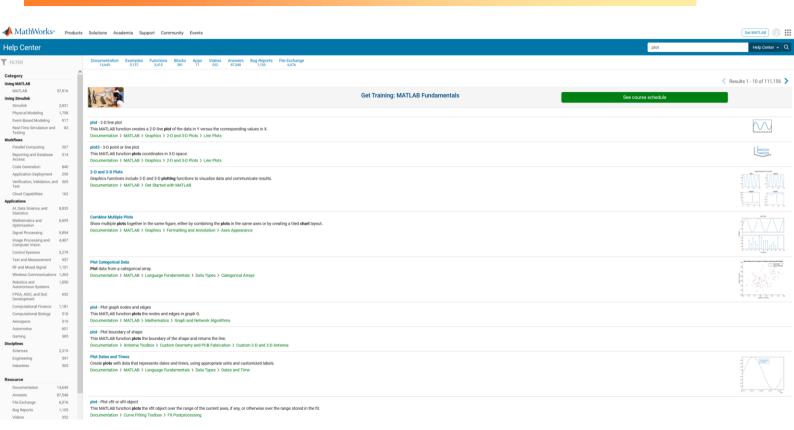




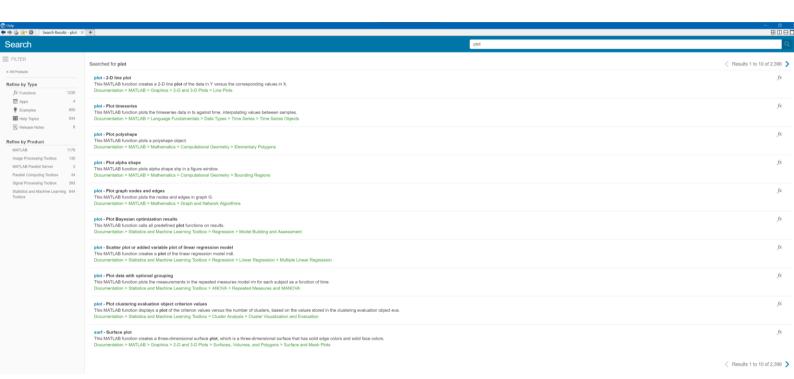
#### Matlab: community



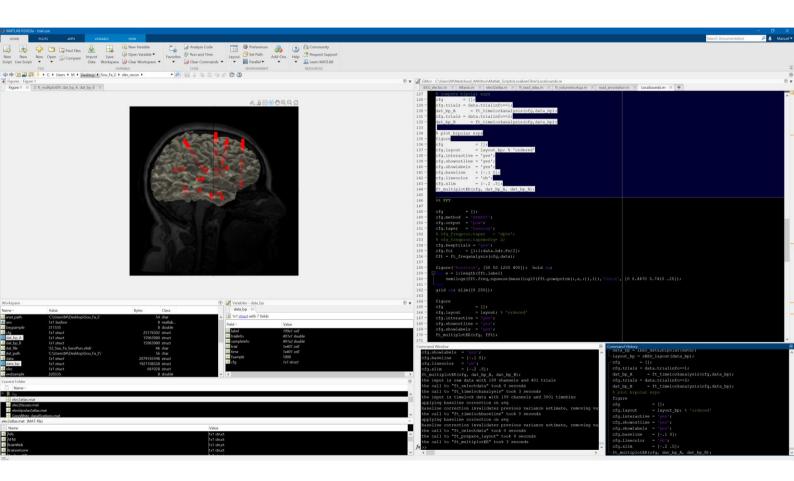
# Matlab: Help



# Matlab: Help



#### Matlab: interface



Data types: Numeric (vectors and matrices) Character and strings arrays

# Data types: Numeric (vectors and matrices) Character and strings arrays Tables

```
LastName = {'Sanchez':'Johnson':'Li':'Diaz':'Brown'}:
Age = [38;43;38;40;49];
Smoker = logical([1;0;1;0;1]);
Height = [71;69;64;67;64];
Weight = [176;163;131;133;119];
BloodPressure = [124 93; 109 77; 125 83; 117 75; 122 80];
T = table(LastName, Age, Smoker, Height, Weight, BloodPressure)
T=5×6 table
    LastName
                                                    BloodPressure
    {'Sanchez'}
                        true
    {'Johnson'}
                        false
                                           163
                                                     109
                                                            77
                        true
    {'Diaz'
                      false 67
                                                            75
   {'Brown' } 49
                       true
                                        119 122
```

Data types:
Numeric
Character and strings arrays
Tables
Cells arrays

```
c = {42, rand(5), "abcd"}

c =
  1×3 cell array
  {[42]}  {5×5 double}  {["abcd"]}
```

Data types:
Numeric
Character and strings arrays
Tables
Cells arrays
Structures

```
s.a = 1;
s.b = {'A','B','C'}

s = struct with fields:
    a: 1
    b: {'A' 'B' 'C'}
```

```
Matrices and arrays manipulation size sort flip transpose permute shiftdim reshape cat
```

```
Basic operation
+-*/
.*./.^
==><~=
& |~ any
round
```

Loop and conditional statements
If elseif else end
Switch case otherwise
For
While
Try catch end

#### **Functions**

Abs

Mean

Mad

mod

fft

Contains

strcmp

strfind

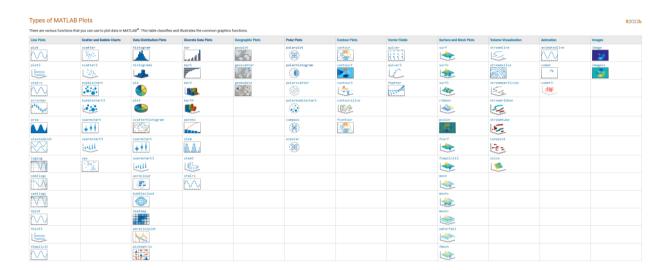
replace

. . .

Read external data readtable imread audioread

...

Graphics scatter plot bar histogram image



Matlab: advices

- **≻**Algorithmic
- ➤ Model for sanity check
- ➤ Plot to visualize data

## Matlab: practice



