

# MATLAB OVERVIEW

## 1. Environment

- *command window* accepts commands
- *workspace* records variables
  - `save` saves variables to disk
  - `clear` clears variables
- *current working directory* is default directory for commands and other files
  - `pwd` shows current working directory
  - `cd` changes current working directory
- *path* is a list of other places to look (directories) for commands
  - change using File/Set Path... or `pathtool`
  
- `help` describes commands, e.g., `help save`
- `lookfor` lists commands whose help text contains a keyword, e.g., `lookfor random`

## 2. Data types

- matrix
- scalar ( =  $1 \times 1$  matrix )
- string ( =  $1 \times n$  matrix )
- others: structure, structure array, cell array, inline function, object

## 3. Commands

- small number of built-in commands
- all other commands are programmed in M or MEX files
- commands can be *scripts* or *functions*
- typically store a related set of commands ( = *toolbox* ) together in a single directory

## 4. Control structures

- decisions: `if-elseif-else-end`, `switch-case-otherwise-end`
- loops: `for-end`, `while-end`

## 5. Useful features

- matrix operations
- plotting and graphics
- toolboxes: statistics, image processing, signal processing, optimization, etc.