

## Handling Matlab data

### 1. Data types in Matlab

- Numerical data: `double`, `int`
- String data: `str`, `char`
- Boolean: `0`, `1`

### 2. Defining Matlab *array*

- How define an array manually: `,` and `;`
- Array assignment functions: `zeros`, `ones`, `linspace`
- Manipulating data: `[]`, `find`, `sort`, `size`, `length`
- Reshape the data: `repmat`, `reshape`
- Defining multidimensional data

### 3. Matlab *cell* data

- A cell array of *strings*, *char*
- Conversion from cell to array: `cell2mat`, `double`

### 4. Using Matlab *table*

- Creating a table: `table`
- Sort by columns: `sortrows`
- Merging two tables: `join`, `innerjoin`, `outerjoin`
- Searching in table: `T(tf, 'colname1', 'colname2')`

## Basic operations in Matlab

1. Arithmetics: `+`, `-`, `*`, `/`, `^`, `sqrt`, `nthroot`
2. Array arithmetics: `.*`, `./`, `.^`
3. Vector operations: `dot`, `cross`
4. Matrix operations: `det`, `inv`