

Introduction

MATLAB stands for *MATrix LABoratory*.

- *Basics*
- *Matrix Manipulations*
- *MATLAB Programming*
- *Graphics*
- *Image types*
- *Image Processing*
- *Useful functions*

Basics

- *Basic data element is an **array** that does not require dimensioning.*
- *$A=[1\ 2\ 3;4\ 5\ 6; 7\ 8\ 9]$*

$$A = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix}$$

Matrix Manipulations

- $\text{Sum}(A)$ = sums of the columns of A
- A' = Transpose of A
- $\text{Diag}(A)$ = gives diagonal elements of A
- $\text{Min}(A)$ = minimum element column wise of A.
- $\text{Max}(A)$ = maximum element column wise of A.
- $\text{Mean}(A)$ = Average element column wise of A.
- $\text{Std}(A)$ = Standard deviation column wise of A.
- $X = \text{zeros}(5,5)$ $Y = \text{ones}(6,6)$
- $M = \text{rand}(5,5)$ $N = \text{randn}(6,6)$
- $A = [1:50]$
- $A = [0:\pi/4:\pi] = [0 \ 0.7854 \ 1.5708 \ 2.3562 \ 3.1416]$