

## Introduction to MATLAB

software/program developed to ease complex calculations  
paid (Best Free Alternative → Octave)

Prof. Cleve B. Moler

MAT = matrix, LAB = laboratory

All calculations are in form of matrix (Does matrix operations on all var)

### Features of MATLAB

- Inbuilt Functions →  $\sin$ ,  $\exp$ ,  $\log$ ,  $\sqrt{\quad}$ ,  $\text{besselj}$ ,  $\text{fzero}$
- User Defined Functions
- Ease in Computation Work
  - Linear Algebra
  - Solving Diff Eq
  - Data Analysis
  - Interpolation and curve fitting
- Toolbox
  - = Simulink - Electronic Circuits
  - = Image Processing
  - = Neural Networks
  - = Bioinformatics
- Limitation
  - = Symbolic calculation
  - = Mathematica software is software used for strong and efficient symbolic calculation

- Possibility of external interfacing with other programming languages

- Efficient GUI ease in analysis of results

- Data Handling

- = no need to define type of var
- = no need to define dimension of array
- = no need to define single or double precision for calculation

Editor → Command Window (workspace)  
Command History

File Types : M-files, MAT files

M-files

- Standard ASCII text files
- extension (.m)
- further classified as
  - script file
  - function file

= Script file  
→ Editor Text