Linear systems and GE

March 5, 2020 12:58 PM

System of linear equations

$$\begin{array}{c} x_1 + 2x_2 + x_3 = 0 \\ x_1 - 5x_2 + x_3 = 1 \end{array} \longrightarrow \begin{bmatrix} 1 & 2 & 1 \\ 1 - 5 & 1 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix} = \begin{bmatrix} 0 \\ 1 \end{bmatrix}$$

- m lin. egn., n unknowns (mxn mchix)

1.1 Solve general system An = 5

- Form augmented matrix [A16] - Use gaussian elemented a row exhelor form

1.2 Non-singular system (# egn = # unknowns)

- Non -singular = muertible 4 mique solutia

1.3 Reduced now exhelon form (singular hartises)

- Solle Az = 6 when A = singular & not square

MATLAB: Solving linear systems

When system solutions

1 No sola. or Infinite sula. If det(A) =0

bassian Winination Lo contradiction Lo dependent un.

Identity Matrix & mertibility

LO IJ

- \(\hat{\tilde{\chi}}\) \In = \(\hat{\chi}\)

- A · In = A

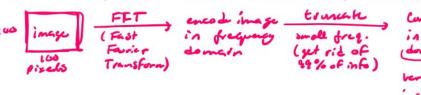
- If A non-singular B det (A) \$ = 0

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