

A MACHINE HAS 3 STATES: A, B AND C
MARKOV CHAIN. TRANSITION MATRIX

$$P = \begin{bmatrix} 0.3 & 0.2 & 0.5 \\ 0.1 & 0.8 & 0.1 \\ 0.2 & 0.6 & 0.2 \end{bmatrix}$$

WHAT IS THE LONG TERM
PROPORTION OF TIME STEPS THE MACHINE
WILL BE IN STATE B?

WE NEED TO FIND THE UNIQUE DISTRIBUTION (PROBABILITY
VECTOR) v SUCH THAT $v = vP$

$$\underline{v(P - I) = 0}$$

$$\underline{v \cdot \mathbf{1}^T = 1}$$