

$$M \times N \cdot N \times P \subset M \times P$$

$$2 \times 1 \cdot 1 \times 3 = 2 \times 3$$

$$\begin{bmatrix} a \\ b \end{bmatrix} \begin{bmatrix} c & d & e \end{bmatrix} = \begin{bmatrix} ac & ad & ae \\ bc & bd & be \end{bmatrix}$$

$$2 \times 1 \cdot 1 \times 3 = 2 \times 3$$

$$\begin{bmatrix} a & c \\ b & d \end{bmatrix} \begin{bmatrix} e & g & i \\ f & h & j \end{bmatrix} = \begin{bmatrix} ae+cf & ag+ch & ai+cj \\ be+df & bg+dh & bi+dj \end{bmatrix}$$

$$2 \times 2$$

$$2 \times 3$$

$$2 \times 3$$

$$\begin{matrix} \text{1st row} \\ C \end{matrix} \left(\begin{matrix} A_{00} & A_{01} \\ B_{00} & B_{01} \end{matrix} \right) \left(\begin{matrix} A_{00} + A_{01} \\ B_{01} + B_{11} \end{matrix} \right) \left(\begin{matrix} A_{00} + A_{01} \\ B_{02} + B_{12} \end{matrix} \right)$$

$$\begin{matrix} \text{2nd row} \\ C \end{matrix} \left(\begin{matrix} A_{10} & A_{11} \\ B_{10} & B_{11} \end{matrix} \right) \left(\begin{matrix} A_{10} + A_{11} \\ B_{01} + B_{11} \end{matrix} \right) \left(\begin{matrix} A_{10} + A_{11} \\ B_{02} + B_{12} \end{matrix} \right)$$

$$C \supset \text{rows } A \times \text{cols } B$$

order of ops: rows A - m

1

p

1

n