Orientation

Contents

1. Scalar, Vector, and Matrix
    a. Scalar
        i. Scalar is a single number
    b. Vector
        i. Vector is an ordered list of numbers (row vector, **column vector - default**)
        ii. Set is an unordered list of numbers
    c. Matrix
        i. Matrix is a two-dimensional array of numbers (row x column)
        ii. Matrix multiplication is **NOT** commutative
2. Transpose
    a. A column vector (n x 1) can be transposed to a row vector (1 x n)
    b. A matrix can be transposed, too
        i. 2 x 3 matrix → 3 x 2 matrix
3. Inner Product, Outer Product
    a. Inner Product
        i. Vector x Vector → Scalar (e.g., 1 x n * n x 1 → 1 x 1)
    b. Outer Product
        i. Vector x Vector → Matrix (e.g., n x 1 * 1 x n → n x n)