Q&A

Slide deck 1: Linear algebra and statistical prerequisites

Test

- What is the notation for the i-th row of a matrix $\mathbf{A}$?
  - $\mathbf{a}_{[i]}$
  - Is $\mathbf{a}_{[i]}$ a row or column vector?
    - Column vector
- What is the notation for the i-th column of a matrix $\mathbf{A}$?
  - $\mathbf{a}_i$
  - Is $\mathbf{a}_i$ a row or column vector?
    - Column vector
- How do you calculate the ij-th element in matrix multiplication $\mathbf{AB}$?
  - Dot product of i-th row of $\mathbf{A}$ and j-th column of $\mathbf{B}$
- What are the conditions for orthogonality between two vectors $\mathbf{x}$ and $\mathbf{y}$:
  - Algebraic condition?
    - Their dot product is zero
  - Geometric condition?
    - The angle between the vectors is 90 degrees
- Condition for a matrix being column-wise orthogonal?
  - Every column is orthogonal to every other column
- Conditions for a matrix being orthogonal:
  - First?
    - Square
  - Second?