



## ORTHONORMAL MATRICES

### Why

TODO

### Definition

An *orthonormal* matrix is a matrix whose columns are an orthonormal family of vectors.

Some authors call these *orthogonal* matrices or *real orthogonal* or *unitary* matrices.

### Notation

Let  $A \in \mathbf{F}^{m \times n}$ . Something something

$$AA^T = I.$$

### Characterizations

PROPOSITION 1. *A matrix is orthonormal if and only if its transpose product with the matrix is the identity.*

PROPOSITION 2. *A matrix is orthonormal if and only if its transpose is orthonormal.*

