



## QUADRATIC FORMS

### Why

### Definition

A quadratic form is a sum of

### Notation

Let  $\mathbf{F}$  be a field and  $A \in \mathbf{F}^{m \times m}$ . For a vector  $x \in \mathbf{R}^d$ , A quadratic form in  $A$  Let  $x \in \mathbf{R}^d$ . Then  $x^T A x$  is a quadratic form.

$$x^T A x = \sum_{i,j} A_{ij} x_i x_j$$

