



## Quadratic Forms

### 1 Why

### 2 Definition

#### 2.1 Notation

Let  $A \in \mathbf{R}^{d \times d}$ . Let  $x \in \mathbf{R}^d$ . Then  $x^T A x$  is a quadratic form.

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