Linear Fitting Statistics

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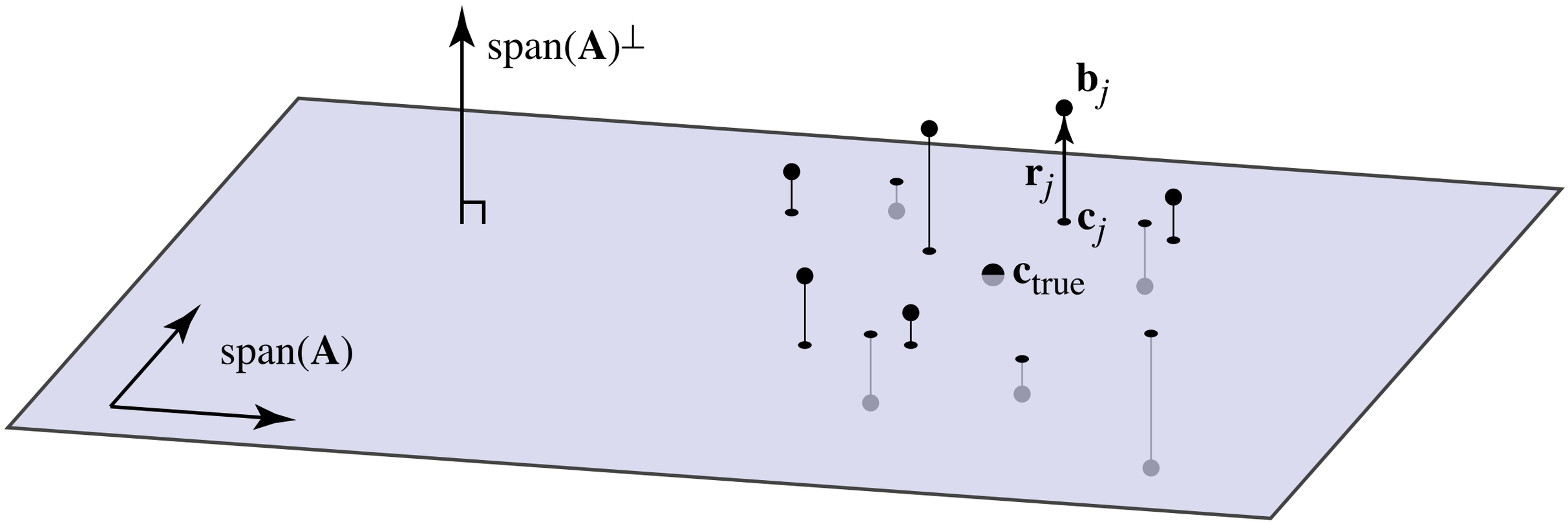

$$\mathbf{Aa} \approx \mathbf{b};\ \mathbf{b} = \mathbf{Dy}$$

$$\mathbf{c} = \mathbf{Aa};\ \mathbf{r} = \mathbf{b} - \mathbf{c};\ \mathbf{b} = \mathbf{c} + \mathbf{r}$$

$$\mathbf{c} \in \mathrm{span}(\mathbf{A});\ \mathbf{r} \in \mathrm{span}(\mathbf{A})^{\perp}$$

$$\mathbf{A} = \mathbf{U}\Sigma\mathbf{V}^T;\ \mathbf{A}^+ = \mathbf{V}\Sigma_1^{-1}\mathbf{U}_1^T$$

$$\mathbf{a} = (\mathbf{V}\Sigma_1^{-1})(\mathbf{U}_1^T)\mathbf{b}$$

Distributions:

y : gaussian; stdev. σ_j for y_j

b : unit gauss in m dims

r : unit gauss in $m - n$ dims

c : unit gauss in n dims

a : gaussian; axes $\sigma_j^{-1}\mathbf{v}_j$