



Why

Here's a simple idea. If the set of postcepts is a vector space, use a predictor that is a linear transformation.¹

Definition

A *linear predictor* is a predictor which is linear in the precepts. Such a model is simple to implement and interpretable, at the cost of flexibility.

\mathbf{R}^d Example

A linear function $f : \mathbf{R}^d \rightarrow \mathbf{R}$ over the vector space $(\mathbf{R}^d, \mathbf{R})$ has a set of parameters $w \in \mathbf{R}^d$ so that

$$f(x) = \sum_i w_i x_i = w^\top x.$$

The parameters of a linear predictor on \mathbf{R}^d are often called *weights*.

¹Future editions will expand on this why.

