GENERALIZED LINEAR MODEL

Supervised Learning:

What is the Generalized Linear Model (GLM)?

- Class of models that relate X (inputs) to Y (output)

$$\mathrm{E}(\mathbf{Y}) = \boldsymbol{\mu} = g^{-1}(\mathbf{X}\boldsymbol{\beta})$$

$$\mathrm{Var}(\mathbf{Y}) = \mathrm{V}(\boldsymbol{\mu}) = \mathrm{V}(g^{-1}(\mathbf{X}\boldsymbol{\beta})).$$

- Allows for a unification of models that have errors of the following form:
  - Normal (Gaussian)
  - Poisson
  - Gamma
  - Tweedie
  - Binomial (Logistic)
  - Multinomial
- MLE is found by iteratively reweighted least squares

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