fANOVA and visualizations

Hooker 2004

- Partial dependence plot for the model

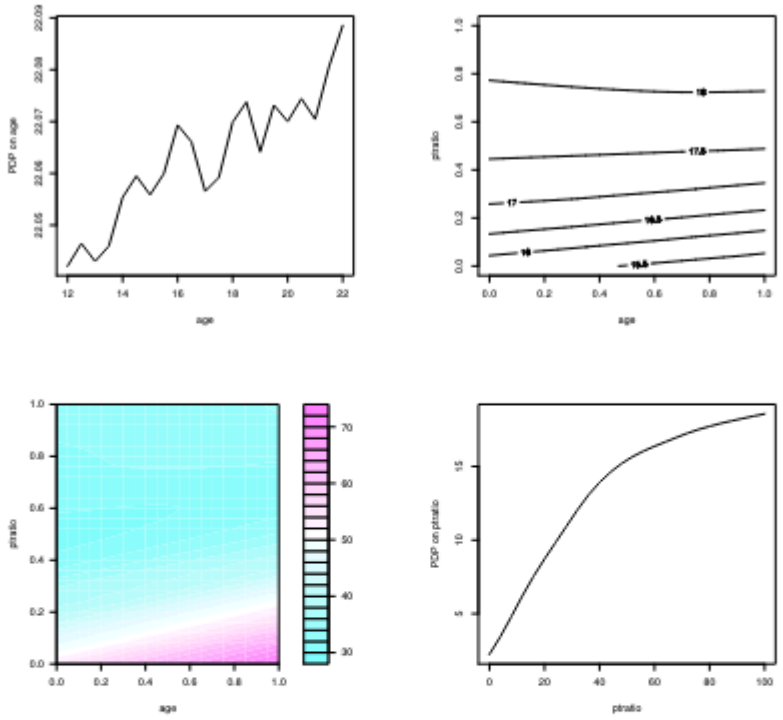

Figure 1: A typical matrix of partial dependence plots given for a neural network trained on the Boston Housing Data. The partial dependence on "age" (top left), and that on "ptratio" (bottom right). A contour plot of the partial dependence on the pair (top right) and a filled contour plot of the variance of the function given "age" and "ptratio" (bottom left).

Molnar

- visualizes the (known) function itself I think

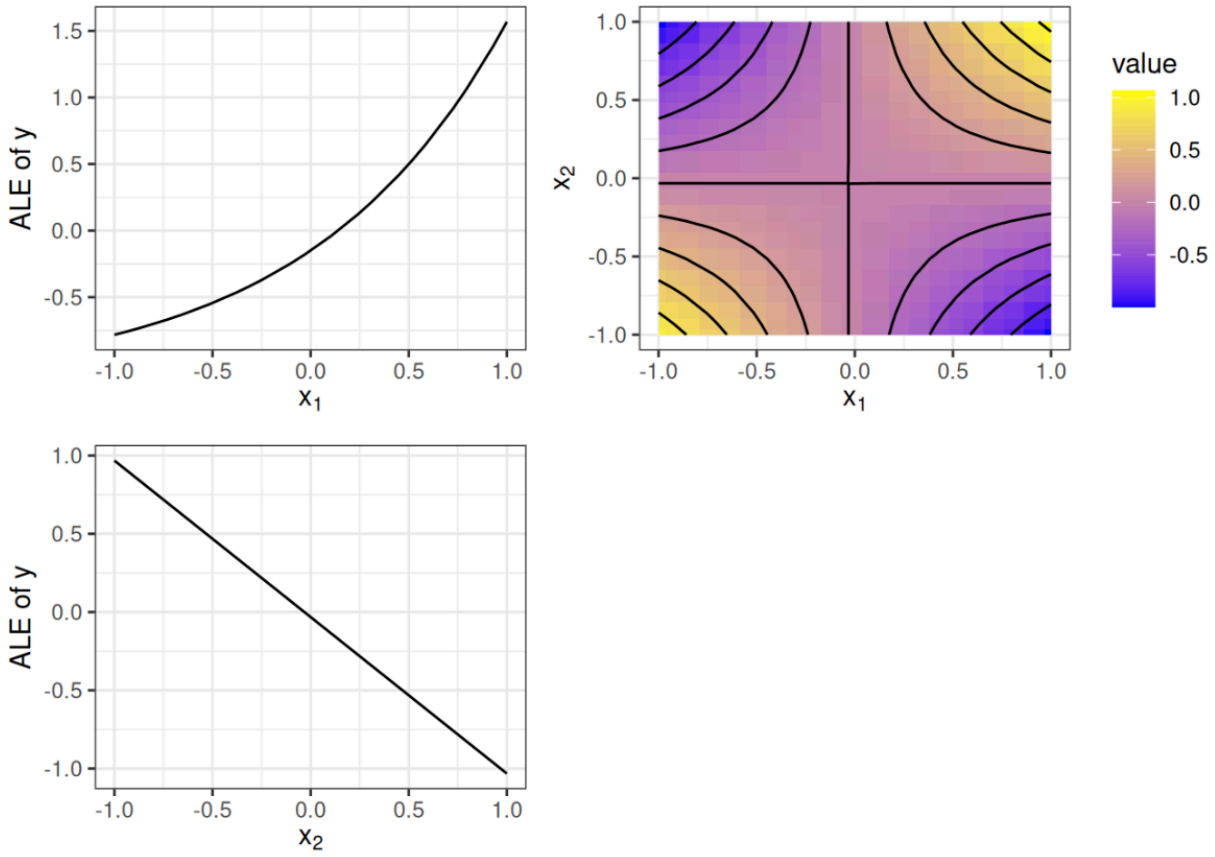

Figure 22.2: Decomposition of a 2-dimensional function into main effects and interaction. Top row: Main effects f_1 (left) and f_2. Bottom: Interaction f_{12} between X_1 and X_2

Hooker 2007

- Visualization of the fANOVA main effect terms f_1 (latitude) and f_2 (longitude)
- the weighted/ generalized terms are estimated via his suggested approach and then evaluated along the range of realized latitude/longitude values respectively

- Compares his fANOVA estimate plots to PDP

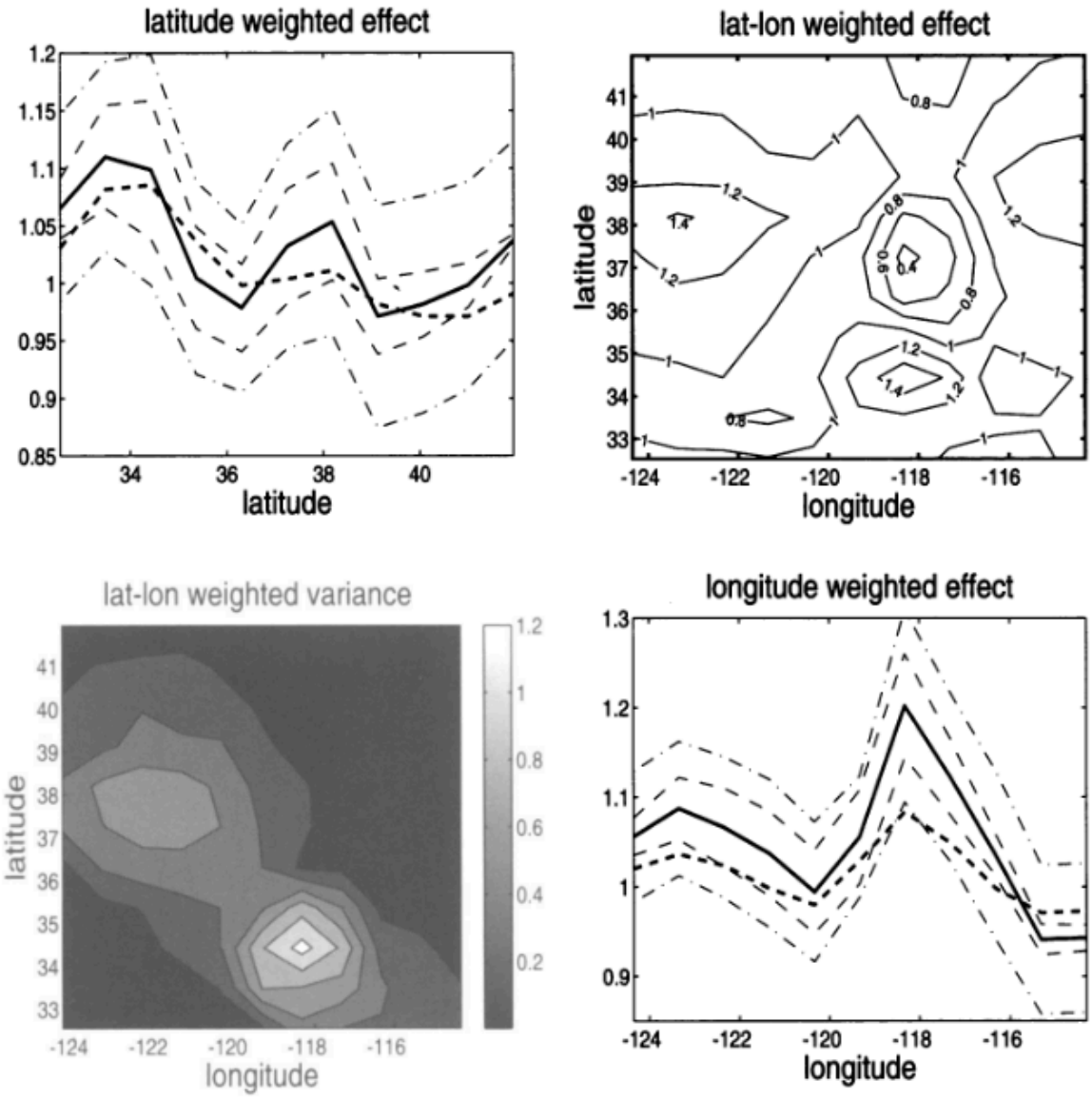

Figure 6. The effect of a regression Support Vector Machine trained on the California Housing Data for latitude and longitude. Generalized effects are given by solid lines, standard effects by dashed lines on the diagonal plots. Thin dashed lines provide bounds based on the conditional variance of the Support Vector Machine and dotted lines give one standard error bounds based on the variance of the effect estimate. The upper diagonal element presents the generalized bivariate effect and the lower the generalized conditional variance.

Rahman 2014

- visualizes density - how related to fANOVA? Somehow uses generalized fANOVA (here called Gen. ADD) to estimate a marginal density - but still unclear how.

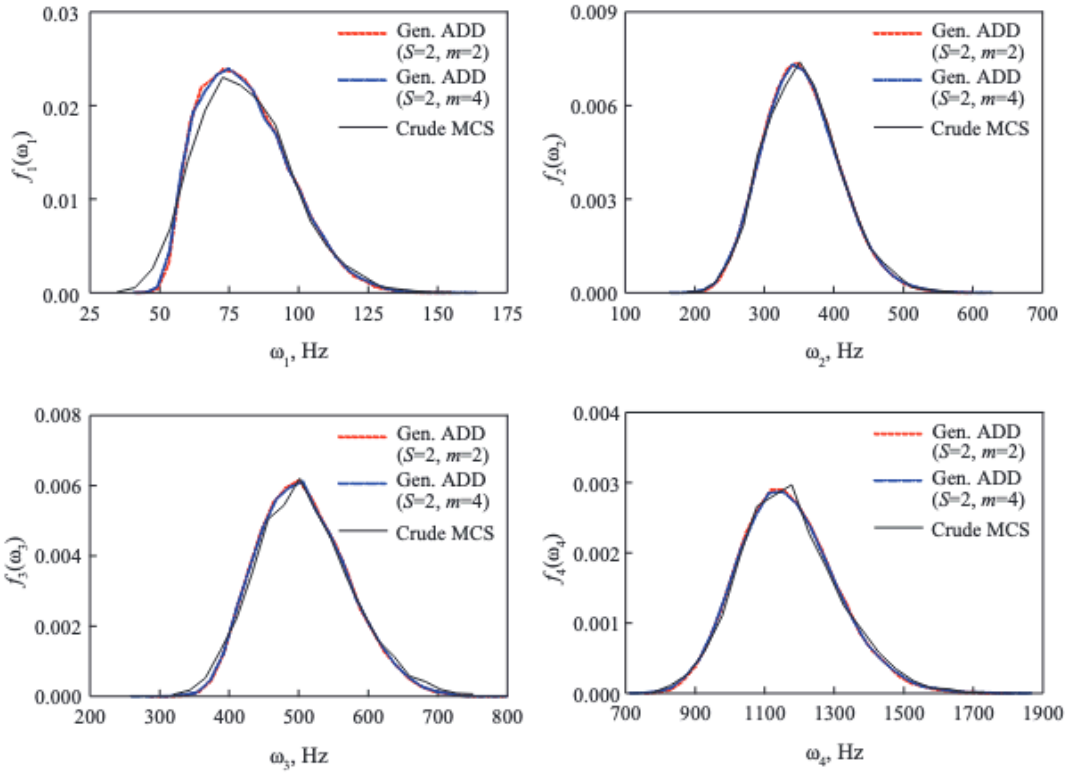

Figure 2. *Marginal probability density functions of the first four natural frequencies of the cantilever plate.*