

## **Workshop 7**

### **Projection pursuit regression**

Download the file `Workshop7.R` from Moodle, and save it in a sensible directory.

**Exercise 1** You will define simulate an outcome variable  $y$  based on two projections of the data. The purpose of this is to investigate the PPR procedure using data where the “truth is known”. First of all the observed predictor variables  $X_1$  and  $X_2$  are simulated as random normal variables. Then two arbitrary direction vectors  $\omega_1$  and  $\omega_2$  are defined. Then the outcome variable  $y$  is simulated. In the `ppr()` function only  $X_1$  and  $X_2$  are passed into the function.

**Exercise 2** You will use PPR to analyse the Auto data, which you have come across before. The data set is provided with James et al. in the `ISLR` package. At the end you will compare the results with a regression tree model.

► Work through the example code step by step. The code is well commented with explanations. You will need to replace the missing code `?` for it to work.