**EE5373: Data Modeling Using R**

**Fall, 2017**

Department of Electrical and Computer Engineering

**University of Minnesota**

Lab 4: Multi-factor regression models.

Due date: See the due date shown on the class moodle page.

Goal: This lab explores multi-factor regression modeling using the CPU DB database.

What to do:

Generate a multi-factor regression model for each of the benchmark programs in CPU DB. Be sure to include the following items for each model:

1. A plot of the pair-wise comparisons (see Fig. 4.1).
2. The list of potential predictors you decide to use in the backward elimination process, including an explanation of why you chose those potential predictors.
3. A list of the steps you go through in the backward elimination process. I don’t need to see all of the R output, just a list of the potential predictors you eliminate, in the order you eliminated them. Be sure to explain why you eliminate each predictor (e.g. the p-value of *y* was below my preselected threshold of *x*).
4. The final model showing each predictor and the corresponding coefficient values.
5. An evaluation of the quality of the model by discussing the residuals, the p-values of the coefficients, the residual standard errors, and the R2 values, and by performing appropriate residual analysis.

What to turn in for grading:

Write a short lab report incorporating all of the above points for each model. Be sure to include appropriate graphs. Upload the pdf file with your report to moodle by the due date.