Overall extraordinarily thorough and clear in both introduction of material, results and discussion. (39/40)

Problem 1 (5,5)

Thorough explanation of gradient descent and a variety of functions tried to evaluate its performance. Charts for iterations and effect of step size, initial guess and threshold were complete and detailed and they were paired with thoughtful conclusions.

Problem 2 (5,5)

Detailed description of the objective and approach of sum of squares error. Included a thoughtful discussion above and beyond the scope of the question, including the maximum order of the model with respect to the rank of ϕ, and the pseudo inverse.

Problem 3(4, 5)

Again a concise yet informative description of the problem statement as applied to ridge regression. Introduces nicely the concept of a regularization term and the need for it. However there was no discussion of the value of M, λ , which worked best and minimized the error. For the last section, the plot of error vs λ for the blog data set are a nice summary.

Problem 4(5,5)

Good explanation of LAD and discussion of its benefits and time to use. The author accurately notes that solution to LAD is less susceptible to the outlier.