

## Lab #2 - nonlinear regression

In this lab, each student is to develop code to calculate a nonlinear regression fit. Note you may not call a single high-level function in MATLAB or another package to do the fitting; you must implement the root finding method discussed in class. The code can be developed in MATLAB, C, or any high level language.

The fitting should be run on the following three data files log-data-A, log-data-B and log-data-C, found at: <http://www.cecac.clemson.edu/~ahoover/ece854/labs/>. In each file the two columns of the data are  $x_i, y_i$ .

The data follows a problem outlined in class and in the lecture notes. Fit a function of the form  $y = \ln(ax)$  where  $a$  is the unknown.

The report should derive the math required for the nonlinear regression. It should show plots of the data for each file. It should also report the initial value of  $a$  used to start the regression, final value of  $a$  found at the end of the regression, and number of iterations needed to converge. You are encouraged to try different initial values of  $a$  to observe its effect on convergence.

The lab due date is given at the class web site. You must submit your code (as an attachment) and report (as an attachment) to [ece\\_assign@clemson.edu](mailto:ece_assign@clemson.edu). Use as subject header ECE8540-1,#2. This email is due by midnight of the due date.