

# Homework 8 - Genetic Algorithms Optimization

NE 697

Due August 1, 2017 at 1:00 pm

Redo the local ridge regression optimization from homework 7 using Genetic Algorithms instead of gradient descent. Compare the results of Homework 7 to this assignment (including, but not limited to, optimized regularization parameter values, validation prediction performance (RMSE), and optimization run time). Discuss any differences in the optimized values and why those differences may have resulted.

You can script your own (binary or continuous) GA to complete this assignment or use the MATLAB toolbox. The methodology of your report should discuss the genetic algorithm approach, the operators (cloning, mating, and mutation) used to build a new generation, and any specifics of your implementation (e.g., selection of parents for mating).

For this homework, prepare a written report in IEEE format. Include any plots and tables that will support your findings. Make sure you correctly label your figures and tables and refer to them in the text. Your report should include **at a minimum** an abstract, introduction, methodology, results (and discussion!), conclusions, and references (if you use any). Note that the methodology section of this report (and every report!) should describe the algorithm that you're using – not the implementation in MATLAB. Include all your code in an appendix (single column) at the end of the report (starting on a new page). Convert your report to .pdf before submitting it through Canvas.