Dear Editors,

We are submitting our research article “Tuning Parameter Selection based on Validation-Error Descent“ for consideration in the Journal of the Royal Statistical Society: Series B.

The article addresses the challenge of tuning multiple regularization parameters in penalized regression problems. The current gold-standard is to perform an exhaustive search over a grid of possible values, but this is often computationally expensive/intractable when there are 2 or more parameters. We propose selecting tuning parameters by solving a continuous optimization problem over a validation set. We show that this method is as effective as an exhaustive grid search for current problems with 2-4 tuning parameters (and much less computationally expensive). In addition we show how this approach allows one to practically consider previously-infeasible models with tens, hundreds, or more tuning parameters.

We believe this manuscript will be of interest to readers of Journal of the Royal Statistical Society, Series B: Tuning parameter selection has been an important open problem, and our method allows us to effectively employ penalized models with more than 1 or 2 tuning parameters feasible using a grid search.

Sincerely,

Jean Feng

Noah Simon