Semester 2 Week 4 meeting notes

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| Isochrone red branch issues  Guy used 10-10 reg but it’s very architecturally dependent  L1 = sparse regularization = happiest at 0  Pick one weight and use L1 regularization and then the smaller you make the weight the less you contribute to the loss function. The same is true with L2 except when you get to smaller numbers and small squared is a very small number. L1 is a V, L2 is a parabola  L2 loss is like putting Gaussian prior on the weights so they should be close to 0 but they should asymptotically approach 0.  Maybe 20% dropout |
| Take the actual temperatures and use the NN to do predictions and then find the distribution of the temp differences  Guy thinks it might come out larger than the dex  Error of 5 kelvin is good! |
| Discussion of the weakness of our isochrones  Guy doesn’t know why our isochrone is so bad |
| Make sure the data is shuffled |
| Guy is using MSE  Because MSE penalises really wrong things heavily and makes the distribution of the errors look Gaussian  MAE is better at pulling in the well behaved points to look pretty  Guy starts with MSE then goes to MAE then back to MSE |
| Prof Peter Tino = computer science guy |
| We are achieving losses that turing institute don’t achieve  So try employing dropout  Dropout is the easiest way to make the functions less crazy  Dropout over reg is Guy’s preference  Dropout by randomly dropping neurons means that the NN doesn’t train just one instance of the neural net, it trains multiple instances, which we get the average of essentially an ensemble, where we don’t have issues form random NN being turned on and off.  Reg limits how expressive the neural net can be. |
| For 20%-50% you should increase the architecture  Guy suggested the architecture should increase  NN per layer by the number that you are dropping out  If you use 50% you should use 50% more neurons i.e. double the number of neurons  Though we aren’t sure if that makes sense. |
| Don’t put dropout on input layer says Guy |

Let Guy know if we want to skype, midnight in England works for guy

Guy should send us the name of the other computer science guy who isn’t Peter Tino  
Guy should let us know when he is happy to skype (guy says whatever time in a couple of days)