**Graded Discussion 3**

We have now explored the three main neural network architectures in common use, fully connected, convolutional, and recurrent. Generally, fully connected neural networks are as classification or regression layers. Feature maps for the classification or regression are learned using CNN or RNN layers (including embedding layers). The distinct properties of CNN layers and RNN layers can often be used to make a rational choice when choosing an architecture.

Describe some AI solution you are interested. Would you plan to use CNN or RNN layers to learn the feature map? Or is the choice possibly ambiguous? Explain your answer.

For this topic, make a post of about 100-300 words here in Piazza. Then post a comment of suggestion on another students post of about 100-200 words.  Posts are due by April 25. Do not post respond in Canvas.

There are two projects some groups are working here at Boeing, one of them as I mentioned before is a CNN model to classify the damage on metal details parts during the fabrication/build of new airplanes. The other project is a bit more specific and it is related to Natural Language Processing problem. The situation is as follows: When a part is damaged or somehow it is outside the drawing configuration or outside allowable values given by official specs documents, the noted part and record will be sent to a specialized engineering group that would evaluate the noted “non-conformance” and provide rework/repair instruction to get the part back to conformity (ensuring the part has at least the original strength values and drawing intent is restored). When that record is sent to this specialized engineering group, it has to be stored along with the provided solution (“disposition”) with all the information (specific problem details, type of damage, damage size, drawing and specs information). With all this written information on the problem as well as the matched solution, one clear option is the automation of such task as we currently have millions of examples of this kind data stored over the last 20 years of airplane fabrication. In this case some sort of RNN model would be better as we have sequential data. Ultimately the goal would be to read the discrepancy text and match that with a potential solution text made out of all the previous examples. One possible option for the architecture could be a bidirectional RNN sequence to sequence model with context and embedding, as the solution of the a problem like this: “a 0.5” long & 0.015” scratch common to a \_\_\_\_\_ panel” would drastically change if the missing word is composite or metal (or something else), but at the same time the order of the sentence does not matter much for the sequence of the text.