# 15-300 Technical Milestone
# 15-300, Fall 2018

William Qian

December 16, 2018

## 1  Milestone Summary

For this current milestone, I had decided to focus down from the general topic of optical/visual illusions to a more concrete research question. As of this moment, I have been able to rule out a couple initial research questions, due to lack of feasibility, and have found a particular subset worth further pursuing. Overall, by dedicating some time over the winter break to further research, investigation and communicating with my professor, I believe a strong, well formed question will be formed before the start of the next semester.

## 2  Current Progress

So far, I have met a couple of times with Professor Lee in which we talked about a couple of approaches and some background knowledge that would be useful for the project. More specifically, I have been reading a book providing a decently high level description of vision theory as well papers relating to the topic of illusions. We have decided to not pursue pure visual illusion generation, as the topic is too broadly defined, and the topic itself isn't particularly applicable. Instead a recent paper has been exploring the development of a neural net called PredNet. One of the applications of this net is that given a static image representing something in motion, the network was able to produce subsequent frames that would imply the image at a later point in time. Although not entirely related to visual illusions, we found the overall premise promising given how we tend to also make predictions when looking at illusions. We are also looking at different general models to use when it comes to object recognition of visual illusions themselves. LSTMs were commonly used for these kind of tasks in the past, but a new technique, called attentional modules, claim to be more effective.

## 3  Changes and conclusion

Overall, I feel that by utilizing some of the winter break, we should be on track to keeping the current schedule for 15-400. I had not accurately estimated the number of papers, and literature needed to be able to generate an interesting and effective research question, which has lead to current delay with the project. I do believe however, we have a good direction, especially after reading the paper on PredNet and so revisions to the milestones don't seem necessary.

Resources required at the moment have not changed since the writing of the research proposal