TERM-PAPER ASSIGNMENT

DUE: Thursday, December6, 2018, 4:30 PM

CSCI677: Computer Vision, Prof. Nevatia

Fall Semester, 2018

This assignment is to write a term-paper on the topic listed below. It is intended to help you think about the techniques and capabilities of computer vision from a high-level perspective. Limit your report to one 8.5" x 11" (standard U.S. letter size) page with 1" margins (top, bottom, left and right), 11 pt font and single line spacing.

Use of deep learning and neural networks has led to revolutionary advances in the ability of computer vision systems to detect and recognize objects. A single-layer neural perceptron was first proposed in 1957 but strong interest from broad vision research community developed only after publication of the AlexNet paper in 2012 with major improvements shown in image classification over the state-of-art at that time.

List key innovations that enabled the large improvements in accuracy after 2010 that were not possible before? Include improvements in architecture as well as algorithms. What role might the increase in memory and computation power may have played? Try to justify your answers but within the prescribed page limit.

You are not expected to conduct a historical search of neural network literature. We have largely covered the basic techniques and their evolution in class. You can also find useful material in the introduction chapter of the GBC book.