CSci 4270 and 6270
Computational Vision,
Spring Semester, 2022
Lecture 09 Exercise — Surprising Keypoint Behavior
Due: Sunday, February 15 at 11:59pm EST

One way to explore the properties of keypoint detectors is to apply them on simple shapes and watch how they behave as things like the amount of smoothing (the scale of scale space) changes. Please do this by working with the Jupyter notebook distributed for class. In particular, create a synthetic image of a square (e.g. interior pixels have intensity 200 and exercise pixels have intensity 100), then run the detector for various values of σ (sigma) in the code.

In addition, what happens with SIFT on this shape?

Please describe your observations in a very simple write-up with just one or a few sentences and some screenshots to show your investigations. You can use whatever tool you'd like (including powerpoint, for example), but you must submit your result as a pdf. Do NOT submit code!!

Note that what you see does not mean that Harris or SIFT are bad, just that their behaviors are sometimes unexpected. Investigations like this are also important as debugging tools.

I also suggest that you explore a bit more by creating other simple shapes that are easily hand-coded in NumPy, but do not submit anything further.

As a reminder: keep it short!