CSCI 378 HW: CNNs for Images

(12) Applying a 3×3 kernel to the resulting 10×10 array yields an array of size $10-3+1 \times 10-3+1$, i.e. 8×8, which is the same size as our original image.

In general, for a $K \times K$ convolutional kernel where K is odd, applying the kernel to an $N \times N$ image with padding width $\left\lfloor \frac{K}{2} \right\rfloor$ yields an array of size $N \times N$.

(13) Exercise: Prove the final statement from (12).