Assignment 1

Aditya Prakash

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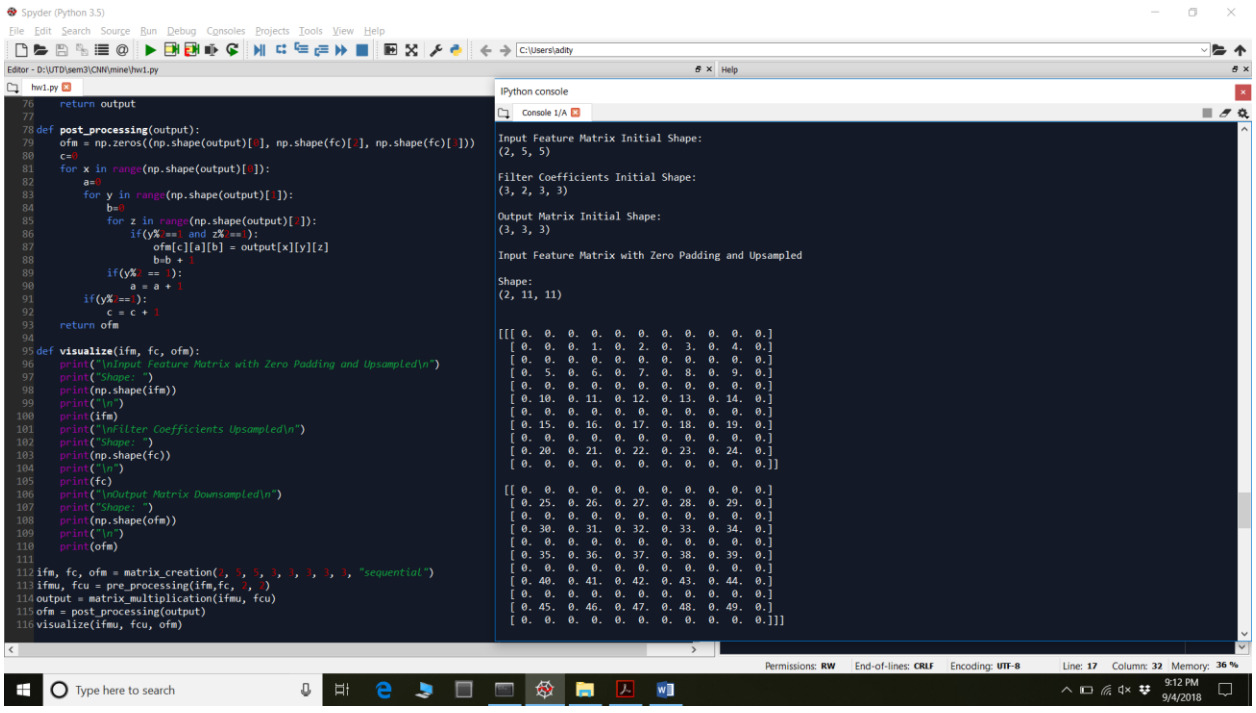
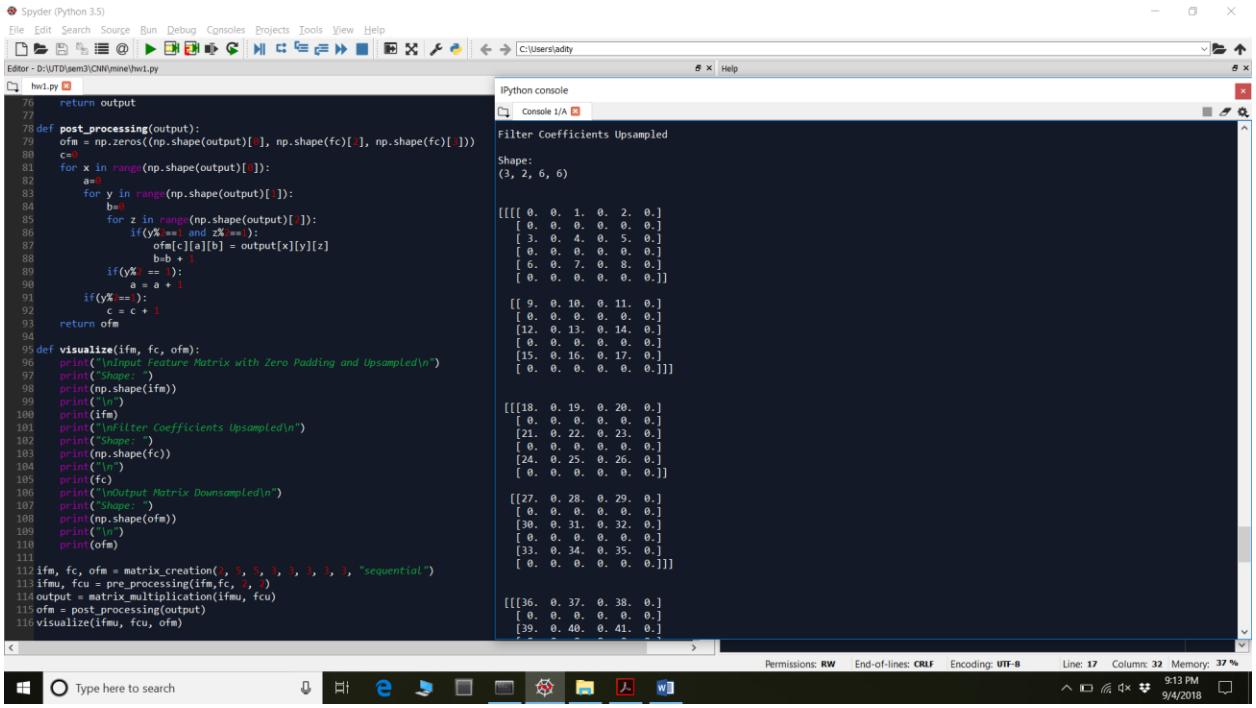
(1) Done
(2) Skipped – Not needed
(3) Python
(4) 12891
(5)




Spyder (Python 3.5)
File Edit Search Source Run Debug Consoles Projects Tools View Help
Editor - D:\UTD\sem3\CNN\mine\hw1.py
hw1.py
return output
def post_processing(output):
ofm = np.zeros((np.shape(output)[0], np.shape(fc)[2], np.shape(fc)[3]))
c=0
for x in range(np.shape(output)[0]):
a=0
for y in range(np.shape(output)[1]):
b=0
for z in range(np.shape(output)[2]):
if(y%2==1 and z%2==1):
ofm[c][a][b] = output[x][y][z]
b=b + 1
if(y%2 == 1):
a = a + 1
if(y%2==1):
c = c + 1
return ofm
def visualize(ifm, fc, ofm):
print("\nInput Feature Matrix with Zero Padding and Upsampled\n")
print("Shape: ")
print(np.shape(ifm))
print("\n")
print(ifm)
print("\nFilter Coefficients Upsampled\n")
print("Shape: ")
print(np.shape(fc))
print("\n")
print(fc)
print("\nOutput Matrix Downsampled\n")
print("Shape: ")
print(np.shape(ofm))
print("\n")
print(ofm)
ifm, fc, ofm = matrix_creation(3, 3, 3, 3, 3, 3, 3, 3, "sequential")
ifmu, fcu = pre_processing(ifm,fc, 2, 2)
output = matrix_multiplication(ifmu, fcu)
ofm = post_processing(output)
visualize(ifmu, fcu, ofm)
IPython console
Console 1/A
Filter Coefficients Upsampled
Shape:
(3, 2, 6, 6)
[[[[0. 0. 1. 0. 2. 0.]
[0. 0. 0. 0. 0. 0.]
[3. 0. 4. 0. 5. 0.]
[0. 0. 0. 0. 0. 0.]
[6. 0. 7. 0. 8. 0.]
[0. 0. 0. 0. 0. 0.]]
[[9. 0. 10. 0. 11. 0.]
[0. 0. 0. 0. 0. 0.]
[12. 0. 13. 0. 14. 0.]
[0. 0. 0. 0. 0. 0.]
[15. 0. 16. 0. 17. 0.]
[0. 0. 0. 0. 0. 0.]]]
[[[18. 0. 19. 0. 20. 0.]
[0. 0. 0. 0. 0. 0.]
[21. 0. 22. 0. 23. 0.]
[0. 0. 0. 0. 0. 0.]
[24. 0. 25. 0. 26. 0.]
[0. 0. 0. 0. 0. 0.]]
[[27. 0. 28. 0. 29. 0.]
[0. 0. 0. 0. 0. 0.]
[30. 0. 31. 0. 32. 0.]
[0. 0. 0. 0. 0. 0.]
[33. 0. 34. 0. 35. 0.]
[0. 0. 0. 0. 0. 0.]]]
[[[36. 0. 37. 0. 38. 0.]
[0. 0. 0. 0. 0. 0.]
[39. 0. 40. 0. 41. 0.]
Permissions: RW End-of-lines: CRLF Encoding: UTF-8 Line: 17 Column: 32 Memory: 37 %
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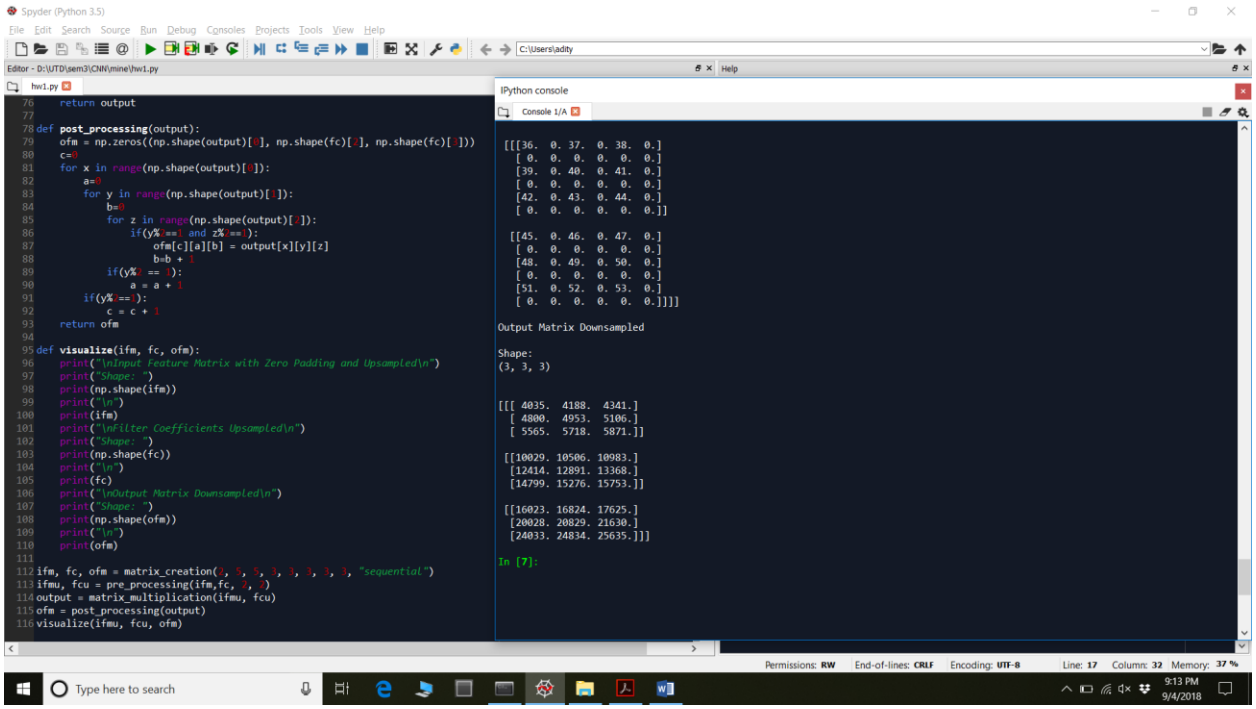
9:13 PM
9/4/2018


Spyder (Python 3.5)
File Edit Search Source Run Debug Consoles Projects Tools View Help
Editor - D:\UTD\sem3\CNN\mine\hw1.py
hw1.py
return output
def post_processing(output):
ofm = np.zeros((np.shape(output)[0], np.shape(fc)[2], np.shape(fc)[3]))
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a=0
for y in range(np.shape(output)[1]):
b=0
for z in range(np.shape(output)[2]):
if(y%2==1 and z%2==1):
ofm[c][a][b] = output[x][y][z]
b=b + 1
if(y%2 == 1):
a = a + 1
if(y%2==1):
c = c + 1
return ofm
def visualize(ifm, fc, ofm):
print("\nInput Feature Matrix with Zero Padding and Upsampled\n")
print("Shape: ")
print(np.shape(ifm))
print("\n")
print(ifm)
print("\nFilter Coefficients Upsampled\n")
print("Shape: ")
print(np.shape(fc))
print("\n")
print(fc)
print("\nOutput Matrix Downsampled\n")
print("Shape: ")
print(np.shape(ofm))
print("\n")
print(ofm)
ifm, fc, ofm = matrix_creation(3, 3, 3, 3, 3, 3, 3, 3, "sequential")
ifmu, fcu = pre_processing(ifm,fc, 2, 2)
output = matrix_multiplication(ifmu, fcu)
ofm = post_processing(output)
visualize(ifmu, fcu, ofm)
IPython console
Console 1/A
[[[36. 0. 37. 0. 38. 0.]
[0. 0. 0. 0. 0. 0.]
[39. 0. 40. 0. 41. 0.]
[0. 0. 0. 0. 0. 0.]
[42. 0. 43. 0. 44. 0.]
[0. 0. 0. 0. 0. 0.]]
[[45. 0. 46. 0. 47. 0.]
[0. 0. 0. 0. 0. 0.]
[48. 0. 49. 0. 50. 0.]
[0. 0. 0. 0. 0. 0.]
[51. 0. 52. 0. 53. 0.]
[0. 0. 0. 0. 0. 0.]]]]
Output Matrix Downsampled
Shape:
(3, 3, 3)
[[[4035. 4188. 4341.]
[4800. 4953. 5106.]
[5565. 5718. 5871.]]
[[10029. 10506. 10983.]
[12414. 12891. 13368.]
[14799. 15276. 15753.]]
[[16023. 16824. 17625.]
[20028. 20829. 21630.]
[24033. 24834. 25635.]]]
In [7]:
Permissions: RW End-of-lines: CRLF Encoding: UTF-8 Line: 17 Column: 32 Memory: 37 %
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