**--- Confusion Matrix (actual, predicted) ---**

**emphysema fibrosis ground\_glass healthy micronodules**

**emphysema 0.76 0.06 0.03 0.12 0.03**

**fibrosis 0.02 0.89 0.07 0.01 0.02**

**ground\_glass 0.02 0.09 0.75 0.11 0.04**

**healthy 0.03 0.01 0.12 0.75 0.10**

**micronodules 0.04 0.02 0.02 0.08 0.84**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **E** | **F** | **GG** | **H** | **M** |
| **E** | **0.76** | **0.06** | **0.03** | **0.12** | **0.03** |
| **F** | **0.02** | **0.89** | **0.07** | **0.01** | **0.02** |
| **GG** | **0.02** | **0.09** | **0.75** | **0.11** | **0.04** |
| **H** | **0.03** | **0.01** | **0.12** | **0.75** | **0.10** |
| **M** | **0.04** | **0.02** | **0.02** | **0.08** | **0.84** |

**VGG19**

[ input\_1, block1\_conv1, block1\_conv2, block1\_pool, block2\_conv1, block2\_conv2, block2\_pool, block3\_conv1, block3\_conv2, block3\_conv3, block3\_conv4, block3\_pool, block4\_conv1, block4\_conv2, block4\_conv3, block4\_conv4, block4\_pool, block5\_conv1, block5\_conv2, block5\_conv3, block5\_conv4, block5\_pool]

[block1\_pool, block2\_pool, block3\_pool, block4\_pool, block5\_pool]

**Layer: block5\_pool**

**Avg F1 Score: 0.776706787548**

**Std Dev: 0.078106684772**

Layer: block4\_pool

Avg F1 Score: 0.765054324429

Std Dev: 0.072882101006

Layer: block3\_pool

Avg F1 Score: 0.741136193889

Std Dev: 0.276907276549

Layer: block2\_pool

Avg F1 Score: 0.687188795846

Std Dev: 0.085383641202

Layer: block1\_pool

Avg F1 Score: 0.678391669867

Std Dev: 0.136155177455

**InceptionV3**

312 total layers

[mixed1, mixed2, mixed3, mixed4, mixed5, mixed6, **mixed7**, mixed8, mixed9, mixed10]

mixed10: 0.778926213543 | 0.0696833193566

mixed9: 0.774303968288 | 0.0644977003604

mixed8: 0.811769996147 | 0.0634377081928

mixed7: 0.814767046338 | 0.0674225043169

mixed6: 0.796894532048 | 0.0917670302923

**mixed5: 0.820481388672 | 0.0601194564813**

mixed4: 0.807157594788 | 0.0600808710832

**ResNet50**

175 total layers

[activation\_1, activation\_2, … , activation\_49] ?

activation\_42: 0.803267695609 | 0.0760351016

activation\_42: 0.793857668143 | 0.0757634145315

**VGG16**

[input\_3, block1\_conv1, block1\_conv2, block1\_pool, block2\_conv1, block2\_conv2, block2\_pool, block3\_conv1, block3\_conv2, block3\_conv3, block3\_pool, block4\_conv1, block4\_conv2, block4\_conv3, block4\_pool, block5\_conv1, block5\_conv2, block5\_conv3, block5\_pool]

[block1\_pool, block2\_pool, block3\_pool, block4\_pool, block5\_pool]

Layer: block5\_pool

Avg F1 Score: 0.764182602607

Std Dev: 0.0697101292611

**Layer: block4\_pool**

**Avg F1 Score: 0.795971865025**

**Std Dev: 0.07111833888**

Layer: block3\_pool

Avg F1 Score: 0.694509818378

Std Dev: 0.0802658601381

**Xception**

133 total layers

[block1\_pool, block2\_pool, … , block13\_pool]

[**‘block13\_sepconv2\_act’**, ‘block12\_sepconv3\_act’, ‘block11\_sepconv3\_act’, ‘block10\_sepconv3\_act’, ‘block9\_sepconv3\_act’, ‘block8\_sepconv3\_act’, ‘block7\_sepconv3\_act’, ‘block6\_sepconv3\_act’, ‘block5\_sepconv3\_act’, ‘block4\_sepconv2\_act’, ‘block3\_sepconv2\_act’, ‘block2\_sepconv2\_act’, ‘block1\_sepconv2\_act’]

**block13\_sepconv2\_act: 0.821078364564 | 0.0618272381316**

block12\_sepconv3\_act: 0.797164198211 | 0.0693510994196

block11\_sepconv3\_act: 0.804583914625 | 0.0664165124935

block10\_sepconv3\_act: 0.813872867227 | 0.0741575457955

block9\_sepconv3\_act: 0.804576271626 | 0.0706443704508

...

**InceptionResnetV2**

781 total layers

block8\_10\_mixed: 0.700635823221 | 0.0696852216788

block8\_8\_mixed: 0.773453020979 | 0.0837664502064

block8\_6\_mixed: 0.778518530942 | 0.0817095702133

block8\_4\_mixed: 0.767349727497 | 0.0855224407614

block8\_2\_mixed: 0.770247731084 | 0.0743397817783

**block17\_20\_mixed: 0.805081176299 | 0.0632437447416**

block17\_16\_mixed: 0.798701011 | 0.0698583459294

block17\_12\_mixed: 0.788884769381 | 0.0871592862092

block35\_1/2/3/.../9/10\_mixed, block17\_1/2/3/.../19/20\_mixed, block8\_1/2/3/.../9/10\_mixed ?