Autoencoder

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| **Filename** | **Details/Changes** |
| Autoencoder.ipynb | Original. Model from lab7. Failed training.  Evaluation metrics (starting from evaluate\_model) don’t work. Fixed in v1. |
| Autoencoder\_v1.ipynb | Switched hidden\_dim and code\_dim (now 1024 and 128, respectively)  Accuracy: 25.1%. Simple Accuracy: 18.3%.  As you can see from the confusion matrix, the model is a lazy predictor.  Everything is predicted as “Neutrophil”. |
| Autoencoder\_v2.ipynb | From v1, removed hidden layer. Set code\_dim to 1024.  From v1, increased batch size to 16.  From v1, increased learning rate to 0.001. |
| Autoencoder\_v3.ipynb | From v1, removed hidden layer. Set code\_dim to 128.  From v1, increased batch size to 32.  From v1, increased learning rate to 0.001. |

MyCNN

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| **Filename** | **Details/Changes** |
| MyCNN.ipynb | Original. Model from HW2.  Accuracy: 86.2%. Simple Accuracy: 76.1%.  Added third 3x3 convolution in each residual block.  Accuracy: 81.0%. Simple Accuracy: 77.5%.  Reverted to original residual blocks. |
| MyCNN\_v1.ipynb | Changed layers from 16>32>64>1280 to 16>64>256>5210.  Accuracy: 73.4%. Simple Accuracy: 30.1%. |
| MyCNN\_v2.ipynb | Changed layers from 16>32>64>1280 to 8>16>32>640.  Accuracy: 81.7%. Simple Accuracy: 36.6%. |
| MyCNN\_v3.ipynb | Added layer to go from 16>32>64>1280 to 16>32>64>128>128.  Accuracy: 86.6%. Simple Accuracy: 70.4%. |
| MyCNN\_v4.ipynb | From v3, changed FC layers from 128>128, 128>4 to 128>512, 512>4.  Accuracy: 85.4%. Simple Accuracy: 74.7%.  Changed batch size to 16. Accuracy: 84.7%. Simple Accuracy: 67.6%.  Changed batch size to 1. Accuracy: 59.1%. Simple Accuracy: 32.4%.  Reverted to original batch size. |
| MyCNN\_v5.ipynb | From v4, changed FC layers from 128>512, 512>4 to 128>256, 256>4.  Accuracy: 80.7%. Simple Accuracy: 31.0%. |
| MyCNN\_v6.ipynb | From v4, changed FC layers from 128>512, 512>4 to 128>64, 64>4.  Accuracy: 80.2%. Simple Accuracy: 78.9%. |
| MyCNN\_v7.ipynb | From v3, changed FC layers from 128>128, 128>4 to 128>1024, 1024>4. Accuracy: 82.1%. Simple Accuracy: 31.0%. |
| MyCNN\_v8.ipynb | From v3, changed layers from 16>32>64>128 to 8>16>64>512.  From v3, changed FC layers from 128>128, 128>4 to 512>128, 128>4.  Accuracy: 80.5%. Simple Accuracy: 60.6%. |
| MyCNN\_v9.ipynb | From v4, added a third 3x3 convolution in each residual block.  This is typically reserved for deeper networks, but just curious.  Accuracy: 86.5%. Simple Accuracy: 84.5%. |
| MyCNN\_v10.ipynb | From v4, changed self.res1 (a, b) kernel size from 3 to (1x3) & (3x1).  Accuracy: 82.5%. Simple Accuracy: 64.8%. |
| MyCNN\_v11.ipynb | From v9, added a fourth 3x3 convolution in each residual block.  Accuracy: 88.2%. Simple Accuracy: 78.9%. |
| MyCNN\_v12.ipynb | From v10, corrected the ACB (I was missing a 3x3 between 1x3 and 3x1).  Accuracy: 85.9%. Simple Accuracy: 66.2%. |
| MyCNN\_v13.ipynb | From v12, corrected the ACB (added in parallel instead of in series).  Accuracy: 80.7%. Simple Accuracy: 50.7%. |
| MyCNN\_v14.ipynb | From v4, added batch normalization between each conv and relu.  ^ In conv layers only, not the residual blocks.  Accuracy: 84.6%. Simple Accuracy: 75.8%. |
| MyCNN\_v15.ipynb | From v4, added batch normalization between each conv and relu.  ^ In all layers (conv and residual blocks).  Accuracy: 81.5%. Simple Accuracy: 73.2%. |
| MyCNN\_v16.ipynb | From v4, added batch normalization between each conv and relu.  ^ In residual blocks only, not the conv layers.  Accuracy: 82.4%. Simple Accuracy: 18.3%. |
| MyCNN\_v17.ipynb | From v4, introduced dropout before each FC layer.  50%: Accuracy: 70.6%. Simple Accuracy: 50.7%.  20%: Accuracy: 84.5%. Simple Accuracy: 36.6%.  Changed batch size to 16. Accuracy: 75.0%. Simple Accuracy: 62.0%.  Changed batch size to 1. Accuracy: 73.2%. Simple Accuracy: 67.6%. |
| MyCNN\_v18.ipynb | From v9, introduced dropout before each FC layer.  50%: Accuracy: 86.5%. Simple Accuracy: 84.5%.  20%: Accuracy: 86.5%. Simple Accuracy: 84.5%.  Changed batch size to 16. Accuracy: 85.4%. Simple Accuracy: 80.3%.  Changed batch size to 1. Accuracy: 82.5%. Simple Accuracy: 69.0%. |
| MyCNN\_v19.ipynb | From v13, introduced dropout before each FC layer.  50%: Accuracy: 44%. Simple Accuracy: 28%.  20%: Accuracy: 83.2%. Simple Accuracy: 62.0%. |
| MyCNN\_v20.ipynb | Removed layer from original.  Made channels 3>16>64.  FC1 input is not 19200.  FC1 output / FC2 input is now 1024 instead of 128.  Accuracy: 67.7%. Simple Accuracy: 40.9%. |

ResNet18

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| **Filename** | **Details/Changes** |
| ResNet18.ipynb | Directly imported and trained successfully. Used to establish support code.  Accuracy: 85.7%. Simple Accuracy: 25.4%. |