**Full Results**

**Spectrograms: 3-Layer CNN, kernel size = 3, 10 epochs, batch size = 128:**

Epoch 1/10

800/800 [==============================] - 73s 91ms/step - loss: 3884.5998 - accuracy: 0.0975

Epoch 2/10

800/800 [==============================] - 72s 90ms/step - loss: 94.1326 - accuracy: 0.1300

Epoch 3/10

800/800 [==============================] - 72s 90ms/step - loss: 2.2611 - accuracy: 0.2237

Epoch 4/10

800/800 [==============================] - 72s 90ms/step - loss: 2.0300 - accuracy: 0.4737

Epoch 5/10

800/800 [==============================] - 73s 92ms/step - loss: 1.4026 - accuracy: 0.6950

Epoch 6/10

800/800 [==============================] - 72s 90ms/step - loss: 0.6137 - accuracy: 0.8288

Epoch 7/10

800/800 [==============================] - 72s 90ms/step - loss: 0.1108 - accuracy: 0.9737

Epoch 8/10

800/800 [==============================] - 72s 90ms/step - loss: 0.0172 - accuracy: 0.9962

Epoch 9/10

800/800 [==============================] - 72s 90ms/step - loss: 0.0052 - accuracy: 0.9987

Epoch 10/10

800/800 [==============================] - 72s 90ms/step - loss: 0.0015 - accuracy: 1.0000

200/200 [==============================] - 4s 20ms/step

test\_acc:  0.32155493829934873

**Spectrogram Vectors: 3-Layer Dense Network, 10 epochs, batch size = 128:**

Epoch 1/10

800/800 [==============================] - 0s 117us/step - loss: 97.0778 - accuracy: 0.0838

Epoch 2/10

800/800 [==============================] - 0s 20us/step - loss: 29.8299 - accuracy: 0.1312

Epoch 3/10

800/800 [==============================] - 0s 20us/step - loss: 22.3205 - accuracy: 0.1625

Epoch 4/10

800/800 [==============================] - 0s 20us/step - loss: 15.9383 - accuracy: 0.1650

Epoch 5/10

800/800 [==============================] - 0s 20us/step - loss: 21.7849 - accuracy: 0.1475

Epoch 6/10

800/800 [==============================] - 0s 20us/step - loss: 17.0468 - accuracy: 0.1437

Epoch 7/10

800/800 [==============================] - 0s 20us/step - loss: 14.3163 - accuracy: 0.1713

Epoch 8/10

800/800 [==============================] - 0s 20us/step - loss: 14.9317 - accuracy: 0.1688

Epoch 9/10

800/800 [==============================] - 0s 20us/step - loss: 14.8829 - accuracy: 0.1650

Epoch 10/10

800/800 [==============================] - 0s 20us/step - loss: 13.6126 - accuracy: 0.1437

200/200 [==============================] - 0s 162us/step

test\_acc:  0.2050000023841858

**Features: 3-Layer Dense Network, 10 epochs, batch size = 128**

Epoch 1/10

800/800 [==============================] - 0s 207us/step - loss: 2.3032 - accuracy: 0.1200

Epoch 2/10

800/800 [==============================] - 0s 22us/step - loss: 2.2803 - accuracy: 0.1850

Epoch 3/10

800/800 [==============================] - 0s 25us/step - loss: 2.2643 - accuracy: 0.2113

Epoch 4/10

800/800 [==============================] - 0s 22us/step - loss: 2.2503 - accuracy: 0.2562

Epoch 5/10

800/800 [==============================] - 0s 21us/step - loss: 2.2360 - accuracy: 0.2663

Epoch 6/10

800/800 [==============================] - 0s 25us/step - loss: 2.2212 - accuracy: 0.3125

Epoch 7/10

800/800 [==============================] - 0s 26us/step - loss: 2.2044 - accuracy: 0.3013

Epoch 8/10

800/800 [==============================] - 0s 29us/step - loss: 2.1855 - accuracy: 0.3125

Epoch 9/10

800/800 [==============================] - 0s 24us/step - loss: 2.1649 - accuracy: 0.3150

Epoch 10/10

800/800 [==============================] - 0s 24us/step - loss: 2.1445 - accuracy: 0.3187

200/200 [==============================] - 0s 239us/step

test\_acc:  0.3341112934835384

**Spectrograms (25% Noise): 3-Layer CNN, kernel size = 3, 10 epochs, batch size = 128:**

Epoch 1/10

800/800 [==============================] - 83s 103ms/step - loss: 3946.8298 - accuracy: 0.1225

Epoch 2/10

800/800 [==============================] - 83s 104ms/step - loss: 56.0900 - accuracy: 0.2113

Epoch 3/10

800/800 [==============================] - 91s 114ms/step - loss: 0.6797 - accuracy: 0.8500

Epoch 4/10

800/800 [==============================] - 79s 99ms/step - loss: 0.0159 - accuracy: 1.0000

Epoch 5/10

800/800 [==============================] - 77s 96ms/step - loss: 7.1056e-04 - accuracy: 1.0000

Epoch 6/10

800/800 [==============================] - 86s 108ms/step - loss: 2.6186e-04 - accuracy: 1.0000

Epoch 7/10

800/800 [==============================] - 76s 95ms/step - loss: 1.0932e-04 - accuracy: 1.0000

Epoch 8/10

800/800 [==============================] - 74s 92ms/step - loss: 4.9669e-05 - accuracy: 1.0000

Epoch 9/10

800/800 [==============================] - 72s 90ms/step - loss: 3.0067e-05 - accuracy: 1.0000

Epoch 10/10

800/800 [==============================] - 70s 88ms/step - loss: 2.1750e-05 - accuracy: 1.0000

200/200 [==============================] - 4s 22ms/step

test\_acc:  0.10499999672174454

**Spectrogram Vectors (25% Noise): 3-Layer Dense Network, 10 epochs, batch size = 128:**

Epoch 1/10

800/800 [==============================] - 0s 117us/step - loss: 97.0778 - accuracy: 0.0921

Epoch 2/10

800/800 [==============================] - 0s 20us/step - loss: 29.8299 - accuracy: 0.1103

Epoch 3/10

800/800 [==============================] - 0s 20us/step - loss: 22.3205 - accuracy: 0.1342

Epoch 4/10

800/800 [==============================] - 0s 20us/step - loss: 15.9383 - accuracy: 0.1573

Epoch 5/10

800/800 [==============================] - 0s 20us/step - loss: 21.7849 - accuracy: 0.1488

Epoch 6/10

800/800 [==============================] - 0s 20us/step - loss: 17.0468 - accuracy: 0.1638

Epoch 7/10

800/800 [==============================] - 0s 20us/step - loss: 14.3163 - accuracy: 0.1731

Epoch 8/10

800/800 [==============================] - 0s 20us/step - loss: 14.9317 - accuracy: 0.1590

Epoch 9/10

800/800 [==============================] - 0s 20us/step - loss: 14.8829 - accuracy: 0.1452

Epoch 10/10

800/800 [==============================] - 0s 20us/step - loss: 13.6126 - accuracy: 0.1765

200/200 [==============================] - 0s 162us/step

test\_acc:  0.1458847362948281

**Spectrogram Vectors (50% Noise): 3-Layer Dense Network, 10 epochs, batch size = 128:**

Epoch 1/10

800/800 [==============================] - 0s 117us/step - loss: 103.9485 - accuracy: 0.0874

Epoch 2/10

800/800 [==============================] - 0s 20us/step - loss: 45.7454 - accuracy: 0.1005

Epoch 3/10

800/800 [==============================] - 0s 20us/step - loss: 30.0395 - accuracy: 0.1211

Epoch 4/10

800/800 [==============================] - 0s 20us/step - loss: 22.9555 - accuracy: 0.1285

Epoch 5/10

800/800 [==============================] - 0s 20us/step - loss: 20.3980 - accuracy: 0.1299

Epoch 6/10

800/800 [==============================] - 0s 20us/step - loss: 18.6522 - accuracy: 0.1257

Epoch 7/10

800/800 [==============================] - 0s 20us/step - loss: 15.0094 - accuracy: 0.1309

Epoch 8/10

800/800 [==============================] - 0s 20us/step - loss: 14.8792 - accuracy: 0.1275

Epoch 9/10

800/800 [==============================] - 0s 20us/step - loss: 14.3249 - accuracy: 0.1432

Epoch 10/10

800/800 [==============================] - 0s 20us/step - loss: 13.3327 - accuracy: 0.1386

200/200 [==============================] - 0s 162us/step

test\_acc:  0.1000014875738299

**Spectrogram Vectors (75% Noise): 3-Layer Dense Network, 10 epochs, batch size = 128:**

Epoch 1/10

800/800 [==============================] - 0s 117us/step - loss: 117.9485 - accuracy: 0.1104

Epoch 2/10

800/800 [==============================] - 0s 20us/step - loss: 85.2348 - accuracy: 0.1028

Epoch 3/10

800/800 [==============================] - 0s 20us/step - loss: 43.3822 - accuracy: 0.1137

Epoch 4/10

800/800 [==============================] - 0s 20us/step - loss: 25.4341 - accuracy: 0.1121

Epoch 5/10

800/800 [==============================] - 0s 20us/step - loss: 23.0957 - accuracy: 0.1175

Epoch 6/10

800/800 [==============================] - 0s 20us/step - loss: 22.3299 - accuracy: 0.1284

Epoch 7/10

800/800 [==============================] - 0s 20us/step - loss: 16.8254 - accuracy: 0.1205

Epoch 8/10

800/800 [==============================] - 0s 20us/step - loss: 15.0055 - accuracy: 0.1276

Epoch 9/10

800/800 [==============================] - 0s 20us/step - loss: 15.2094 - accuracy: 0.1299

Epoch 10/10

800/800 [==============================] - 0s 20us/step - loss: 14.7238 - accuracy: 0.1247

200/200 [==============================] - 0s 162us/step

test\_acc:  0.1000000488534231

**Features (25% Noise): 3-Layer Dense Network, 10 epochs, batch size = 128**

Epoch 1/10

1000/1000 [==============================] - 0s 78us/step - loss: 112.4201 - accuracy: 0.0990

Epoch 2/10

1000/1000 [==============================] - 0s 10us/step - loss: 55.9162 - accuracy: 0.1190

Epoch 3/10

1000/1000 [==============================] - 0s 10us/step - loss: 30.7691 - accuracy: 0.1350

Epoch 4/10

1000/1000 [==============================] - 0s 10us/step - loss: 24.7659 - accuracy: 0.1390

Epoch 5/10

1000/1000 [==============================] - 0s 12us/step - loss: 19.1541 - accuracy: 0.1540

Epoch 6/10

1000/1000 [==============================] - 0s 10us/step - loss: 16.6371 - accuracy: 0.1530

Epoch 7/10

1000/1000 [==============================] - 0s 10us/step - loss: 15.7920 - accuracy: 0.1660

Epoch 8/10

1000/1000 [==============================] - 0s 11us/step - loss: 12.9953 - accuracy: 0.2000

Epoch 9/10

1000/1000 [==============================] - 0s 11us/step - loss: 12.4551 - accuracy: 0.2060

Epoch 10/10

1000/1000 [==============================] - 0s 12us/step - loss: 10.8870 - accuracy: 0.2270

1000/1000 [==============================] - 0s 35us/step

test\_acc:  0.20900000631809235

**Features (50% Noise): 3-Layer Dense Network, 10 epochs, batch size = 128**

Epoch 1/10

1000/1000 [==============================] - 0s 78us/step - loss: 236.0566 - accuracy: 0.1350

Epoch 2/10

1000/1000 [==============================] - 0s 16us/step - loss: 76.6896 - accuracy: 0.1510

Epoch 3/10

1000/1000 [==============================] - 0s 16us/step - loss: 43.6137 - accuracy: 0.1700

Epoch 4/10

1000/1000 [==============================] - 0s 0us/step - loss: 33.7469 - accuracy: 0.2090

Epoch 5/10

1000/1000 [==============================] - 0s 16us/step - loss: 30.2251 - accuracy: 0.2090

Epoch 6/10

1000/1000 [==============================] - 0s 16us/step - loss: 24.3718 - accuracy: 0.2050

Epoch 7/10

1000/1000 [==============================] - 0s 16us/step - loss: 21.8582 - accuracy: 0.2160

Epoch 8/10

1000/1000 [==============================] - 0s 0us/step - loss: 17.9815 - accuracy: 0.2080

Epoch 9/10

1000/1000 [==============================] - 0s 16us/step - loss: 15.1669 - accuracy: 0.2080

Epoch 10/10

1000/1000 [==============================] - 0s 16us/step - loss: 15.4068 - accuracy: 0.2020

1000/1000 [==============================] - 0s 31us/step

test\_acc:  0.1459999978542328

**Features (75% Noise): 3-Layer Dense Network, 10 epochs, batch size = 128**

Epoch 1/10

1000/1000 [==============================] - 0s 78us/step - loss: 254.1876 - accuracy: 0.0985

Epoch 2/10

1000/1000 [==============================] - 0s 16us/step - loss: 82.3964 - accuracy: 0.1190

Epoch 3/10

1000/1000 [==============================] - 0s 16us/step - loss: 56.2372 - accuracy: 0.1211

Epoch 4/10

1000/1000 [==============================] - 0s 0us/step - loss: 43.2994 - accuracy: 0.1574

Epoch 5/10

1000/1000 [==============================] - 0s 16us/step - loss: 33.3531 - accuracy: 0.1693

Epoch 6/10

1000/1000 [==============================] - 0s 16us/step - loss: 26.3672 - accuracy: 0.1578

Epoch 7/10

1000/1000 [==============================] - 0s 16us/step - loss: 23.3099 - accuracy: 0.1439

Epoch 8/10

1000/1000 [==============================] - 0s 0us/step - loss: 19.3449 - accuracy: 0.1988

Epoch 9/10

1000/1000 [==============================] - 0s 16us/step - loss: 17.3639 - accuracy: 0.1957

Epoch 10/10

1000/1000 [==============================] - 0s 16us/step - loss: 16.0066 - accuracy: 0.2031

1000/1000 [==============================] - 0s 31us/step

test\_acc:  0.1001249985374244