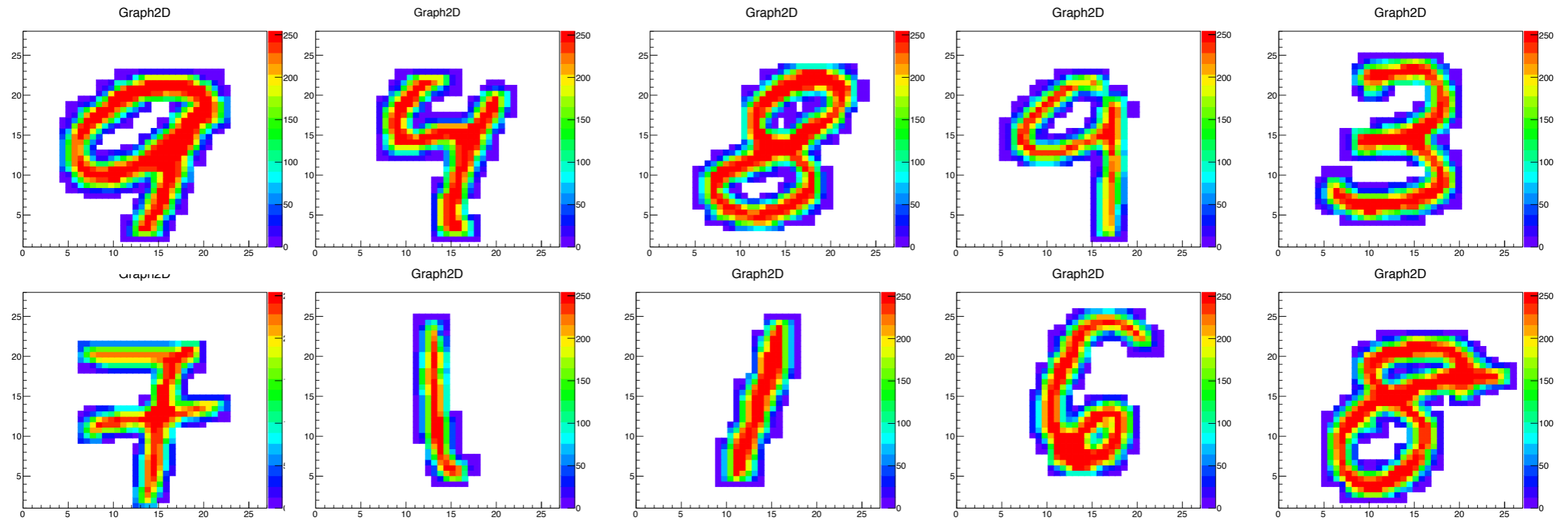# MNIST SET

- Set of handwritten numbers that serve as a benchmark for machine learning algorithms

TENSORFLOW EXAMPLE

```python
x = tf.placeholder(tf.float32, [None, 784])
y_ = tf.placeholder(tf.float32, [None, 10])
W = tf.Variable(tf.zeros([784, 10]))
b = tf.Variable(tf.zeros([10]))
y = tf.nn.softmax(tf.matmul(x, W) + b)

cross_entropy = tf.reduce_mean(-tf.reduce_sum(y_ * tf.log(y), reduction_indices=[1

train_step = tf.train.GradientDescentOptimizer(0.5).minimize(cross_entropy)

sess = tf.InteractiveSession()

tf.global_variables_initializer().run()

for _ in range(1000):
  batch_xs, batch_ys = mnist.train.next_batch(100)
  sess.run(train_step, feed_dict={x: batch_xs, y_: batch_ys})


accuracy = tf.reduce_mean(tf.cast(correct_prediction, tf.float32))
```

- Very compact python code to define, train, and test neural network
- Would be nice to have some diagnostics. . . .

SOME EXAMPLES

- Use pyROOT to embed ROOT code/objects into python code and record details