

Yelp Restaurant Photo Classification

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Yandex Data Factory



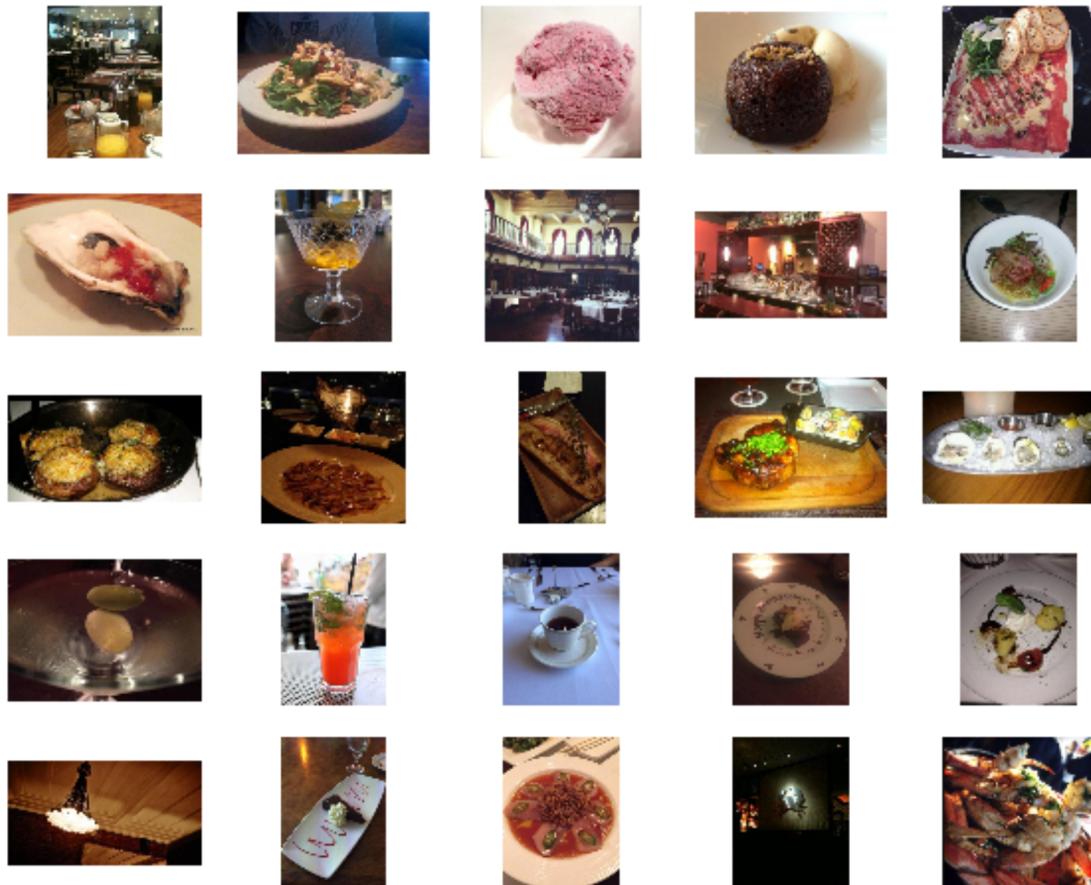
Данные

- 2к организаций
- 240к фоток (сильно неравномерно по организациям, от 5 до 5000)
- 9 лейблов:
 - 0: good_for_lunch
 - 1: good_for_dinner
 - 2: takes_reservations
 - 3: outdoor_seating
 - 4: restaurant_is_expensive
 - 5: has_alcohol
 - 6: has_table_service
 - 7: ambience_is_classy
 - 8: good_for_kids

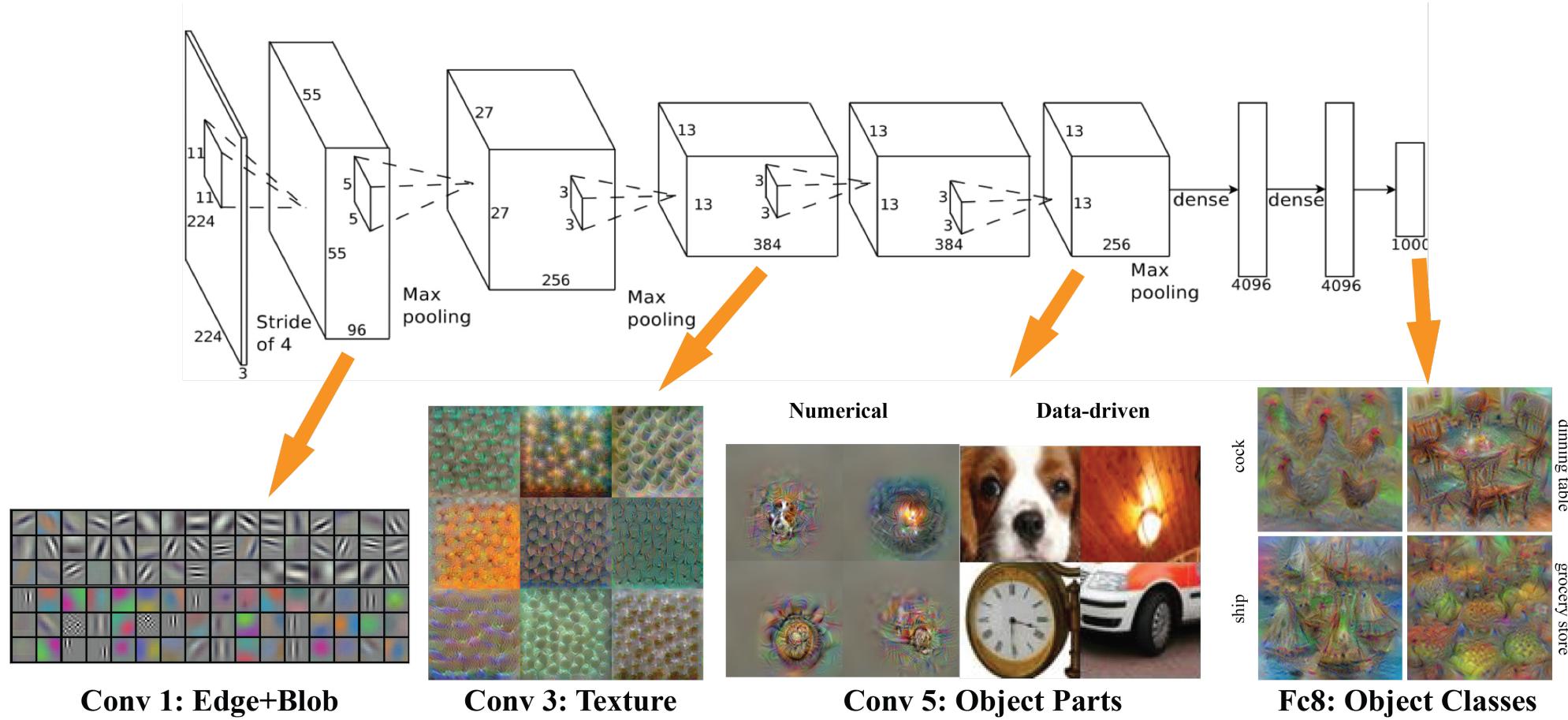
Данные



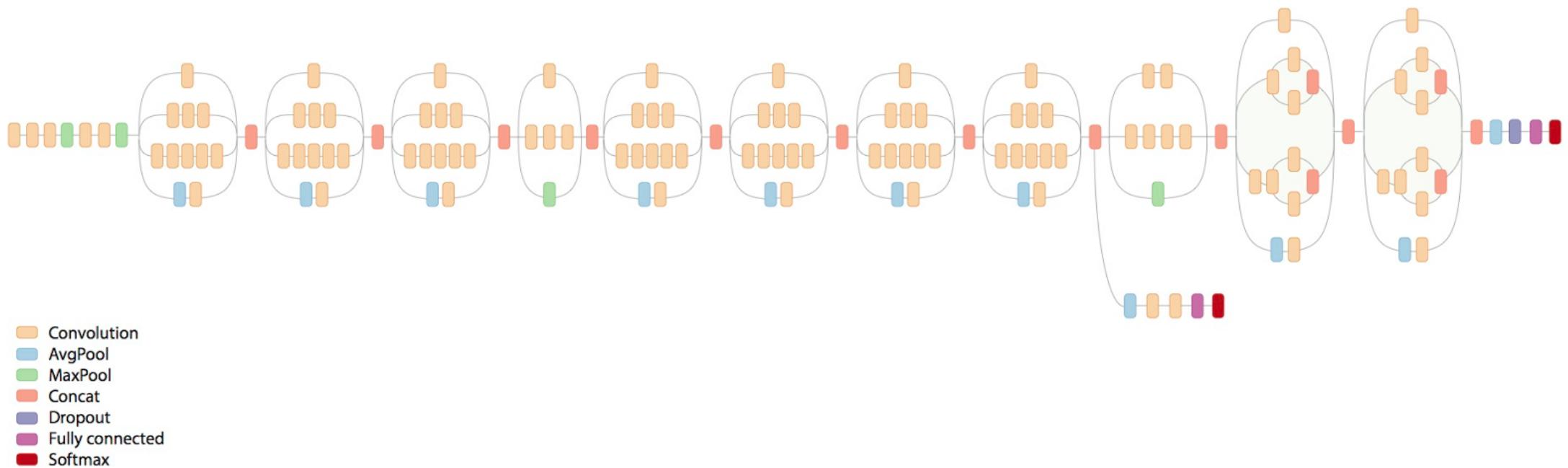
Класс restaurant_is_expensive



Deep Networks: AlexNet



We need to go deeper: InceptionV3



TensorFlow

```
# new layer for 9 labels
next_to_last = sess.graph.get_tensor_by_name('pool_3:0')

W = tf.Variable(W.astype(np.float32), name="weights")
b = tf.Variable(b.astype(np.float32), name="bias")

comb = tf.add(tf.matmul(tf.squeeze(next_to_last, squeeze_dims=[1, 2]), W), b, name="comb")
y = tf.nn.sigmoid(comb, name="y-predicted")
y_ = tf.placeholder("float", [None, 9], name="y-input")

loss = -tf.reduce_mean(y_*tf.log(y + 1e-15) + (1 - y_)*tf.log(1 - y + 1e-15))
partial_loss = -tf.reduce_sum(y_*tf.log(y + 1e-15) + (1 - y_)*tf.log(1 - y + 1e-15))

learning_rate = tf.Variable(1e-5, trainable=False)

optimizer = tf.train.RMSPropOptimizer(learning_rate, decay=0.9, epsilon=1.0)
train_step = optimizer.minimize(loss)
```