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In [1]: import numpy as np
from keras.layers import Dense, Activation
from keras.layers.recurrent import SimpleRNN, LSTM, GRU
from keras.models import Sequential

# построчное чтение из примера с текстом
with open("alice_in_wonderland.txt", 'rb') as _in:
    lines = []
    for line in _in:
        line = line.strip().lower().decode("ascii", "ignore")
        if len(line) == 0:
            continue
        lines.append(line)
text = " ".join(lines)
chars = set([c for c in text])
nb_chars = len(chars)

# создание индекса символов и reverse mapping чтобы передвигаться между значениями numerical
# ID and a specific character. The numerical ID will correspond to a column
# ID и определенный символ. Numerical ID будет соответствовать колонке
# число при использовании one-hot кодировки для представление входов символа
char2index = {c: i for i, c in enumerate(chars)}
index2char = {i: c for i, c in enumerate(chars)}

# для удобства выберете фиксированную длину последовательность 10 символов
SEQLEN, STEP = 10, 1
input_chars, label_chars = [], []

# конвертация data в серии разных SEQLEN-length субпоследовательностей
for i in range(0, len(text) - SEQLEN, STEP):
    input_chars.append(text[i: i + SEQLEN])
    label_chars.append(text[i + SEQLEN])

# Вычисление one-hot encoding входных последовательностей X и следующего символа (the label) y

X = np.zeros((len(input_chars), SEQLEN, nb_chars), dtype=np.bool)
y = np.zeros((len(input_chars), nb_chars), dtype=np.bool)
for i, input_char in enumerate(input_chars):
    for j, ch in enumerate(input_char):
        X[i, j, char2index[ch]] = 1
    y[i, char2index[label_chars[i]]] = 1

# установка ряда метапараметров для нейронной сети и процесса тренировки
# BATCH_SIZE, HIDDEN_SIZE = 128, 128 - прогон 1 загрузка процессора 60%
BATCH_SIZE, HIDDEN_SIZE = 256, 256 # прогон 2 загрузка процессора 80%
NUM_ITERATIONS = 150 # 25 должно быть достаточно
NUM_EPOCHS_PER_ITERATION = 1
NUM_PREDS_PER_EPOCH = 100

# Create a super simple recurrent neural network. There is one recurrent
# layer that produces an embedding of size HIDDEN_SIZE from the one-hot
# encoded input layer. This is followed by a Dense fully-connected layer
# across the set of possible next characters, which is converted to a
# probability score via a standard softmax activation with a multi-class
# cross-entropy loss function linking the prediction to the one-hot
# encoding character label.

...

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Using TensorFlow backend.

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Итерация #: 0
Epoch 1/1
158773/158773 [=====] - 68s 425us/step - loss: 2.359
0
Генерация из посева: , being fa
, being far the mast and and and and and and and and and and and and
and and and and and and and and a=====
=====
Итерация #: 1
Epoch 1/1
158773/158773 [=====] - 77s 483us/step - loss: 1.913
2
Генерация из посева: ng thing i
ng thing in a dont the mack the mack the mack the mack the mack the mack the
mack the mack the mack the mack t=====
=====
Итерация #: 2
Epoch 1/1
158773/158773 [=====] - 76s 480us/step - loss: 1.739
3
Генерация из посева: dates on
dates on the dortone that a little said the dorthent of the dorthent of the
dorthent of the dorthent of the d=====
=====
Итерация #: 3
Epoch 1/1
158773/158773 [=====] - 73s 462us/step - loss: 1.620
8
Генерация из посева: gloves, a
gloves, and they said the gryphon and the formouse she was the formouse she
was the formouse she was the form=====
=====
Итерация #: 4
Epoch 1/1
158773/158773 [=====] - 70s 443us/step - loss: 1.527
8
Генерация из посева: inued the
inued the did of the thing in a more the dirmonter and she was the did of the
thing in a more the dirmonter an=====
=====
Итерация #: 5
Epoch 1/1
158773/158773 [=====] - 74s 468us/step - loss: 1.450
2
Генерация из посева: trembling
trembling and said to herself, and said to herself, and said to herself, and
said to herself, and said to her=====
=====
Итерация #: 6
Epoch 1/1
158773/158773 [=====] - 80s 503us/step - loss: 1.385
2
Генерация из посева: to the doo
to the door alice, and she was not continuse the rabbit something of the trye
emed to steak to her eles of the =====
=====
Итерация #: 7
Epoch 1/1
158773/158773 [=====] - 79s 495us/step - loss: 1.328
9
Генерация из посева: r two, loo
r two, looking a little thing i was the mouse to her even said to her and a l
ittle thing i was the mouse to he=====
=====
Итерация #: 8
Epoch 1/1
158773/158773 [=====] - 71s 449us/step - loss: 1.280
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In []: