全模型训练，学习率0.1

Epoch: 0

Epoch: 1, Train\_acc:25.3%, Train\_loss:nan, Test\_acc:5.3%, Test\_loss:nan, Lr:1.00E-01

Epoch: 1

Epoch: 2, Train\_acc:5.6%, Train\_loss:nan, Test\_acc:5.3%, Test\_loss:nan, Lr:1.00E-01

Epoch: 2

Epoch: 3, Train\_acc:5.6%, Train\_loss:nan, Test\_acc:5.3%, Test\_loss:nan, Lr:1.00E-01

Epoch: 3

Epoch: 4, Train\_acc:5.6%, Train\_loss:nan, Test\_acc:5.3%, Test\_loss:nan, Lr:9.20E-02

Epoch: 4

Epoch: 5, Train\_acc:5.6%, Train\_loss:nan, Test\_acc:5.3%, Test\_loss:nan, Lr:9.20E-02

全模型训练，学习率0.05

Epoch: 1, Train\_acc:14.4%, Train\_loss:2.729, Test\_acc:12.5%, Test\_loss:2.746, Lr:5.00E-02

Epoch: 2, Train\_acc:17.4%, Train\_loss:2.564, Test\_acc:23.6%, Test\_loss:2.320, Lr:5.00E-02

Epoch: 3, Train\_acc:23.8%, Train\_loss:2.321, Test\_acc:33.3%, Test\_loss:1.966, Lr:5.00E-02

Epoch: 4, Train\_acc:34.5%, Train\_loss:2.003, Test\_acc:26.4%, Test\_loss:2.466, Lr:4.60E-02

Epoch: 5, Train\_acc:52.0%, Train\_loss:1.517, Test\_acc:31.7%, Test\_loss:2.145, Lr:4.60E-02

Epoch: 6, Train\_acc:58.7%, Train\_loss:1.266, Test\_acc:57.2%, Test\_loss:1.276, Lr:4.60E-02

Epoch: 7, Train\_acc:71.0%, Train\_loss:0.875, Test\_acc:58.6%, Test\_loss:1.345, Lr:4.60E-02

Epoch: 8, Train\_acc:75.7%, Train\_loss:0.782, Test\_acc:53.1%, Test\_loss:1.401, Lr:4.23E-02

Epoch: 9, Train\_acc:87.5%, Train\_loss:0.418, Test\_acc:67.2%, Test\_loss:1.056, Lr:4.23E-02

Epoch:10, Train\_acc:97.6%, Train\_loss:0.093, Test\_acc:69.7%, Test\_loss:1.056, Lr:4.23E-02

Epoch:11, Train\_acc:97.8%, Train\_loss:0.075, Test\_acc:53.9%, Test\_loss:1.570, Lr:4.23E-02

Epoch:12, Train\_acc:97.0%, Train\_loss:0.118, Test\_acc:74.2%, Test\_loss:0.934, Lr:3.89E-02

Epoch:13, Train\_acc:99.9%, Train\_loss:0.007, Test\_acc:77.8%, Test\_loss:0.921, Lr:3.89E-02

Epoch:14, Train\_acc:100.0%, Train\_loss:0.001, Test\_acc:75.3%, Test\_loss:1.191, Lr:3.89E-02

Epoch:15, Train\_acc:59.9%, Train\_loss:nan, Test\_acc:5.3%, Test\_loss:nan, Lr:3.89E-02

Epoch:16, Train\_acc:5.6%, Train\_loss:nan, Test\_acc:5.3%, Test\_loss:nan, Lr:3.58E-02

Epoch:17, Train\_acc:5.6%, Train\_loss:nan, Test\_acc:5.3%, Test\_loss:nan, Lr:3.58E-02

Epoch:18, Train\_acc:5.6%, Train\_loss:nan, Test\_acc:5.3%, Test\_loss:nan, Lr:3.58E-02

Epoch:19, Train\_acc:5.6%, Train\_loss:nan, Test\_acc:5.3%, Test\_loss:nan, Lr:3.58E-02

Epoch:20, Train\_acc:5.6%, Train\_loss:nan, Test\_acc:5.3%, Test\_loss:nan, Lr:3.30E-02

Epoch:21, Train\_acc:5.6%, Train\_loss:nan, Test\_acc:5.3%, Test\_loss:nan, Lr:3.30E-02

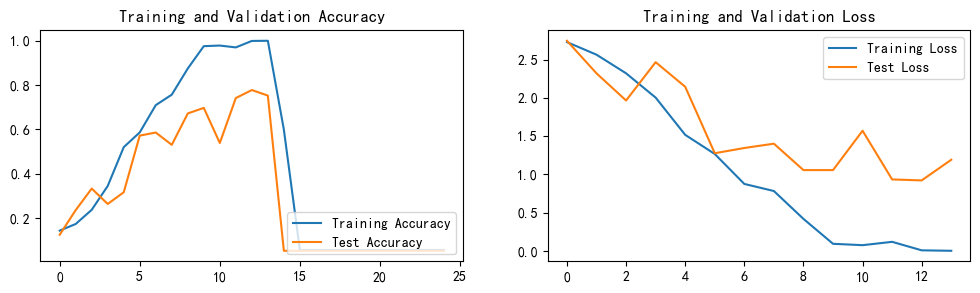
Epoch:22, Train\_acc:5.6%, Train\_loss:nan, Test\_acc:5.3%, Test\_loss:nan, Lr:3.30E-02

Epoch:23, Train\_acc:5.6%, Train\_loss:nan, Test\_acc:5.3%, Test\_loss:nan, Lr:3.30E-02

Epoch:24, Train\_acc:5.6%, Train\_loss:nan, Test\_acc:5.3%, Test\_loss:nan, Lr:3.03E-02

Epoch:25, Train\_acc:5.6%, Train\_loss:nan, Test\_acc:5.3%, Test\_loss:nan, Lr:3.03E-02

不知道为啥，中间到100%了，再训练飞了。



全模型训练，学习率0.02

Epoch: 1, Train\_acc:20.6%, Train\_loss:2.376, Test\_acc:33.9%, Test\_loss:1.944, Lr:2.00E-02

Epoch: 2, Train\_acc:40.9%, Train\_loss:1.687, Test\_acc:53.6%, Test\_loss:1.477, Lr:2.00E-02

Epoch: 3, Train\_acc:57.2%, Train\_loss:1.227, Test\_acc:50.8%, Test\_loss:1.445, Lr:2.00E-02

Epoch: 4, Train\_acc:66.7%, Train\_loss:1.026, Test\_acc:57.2%, Test\_loss:1.255, Lr:1.84E-02

Epoch: 5, Train\_acc:81.2%, Train\_loss:0.579, Test\_acc:73.9%, Test\_loss:0.809, Lr:1.84E-02

Epoch: 6, Train\_acc:89.0%, Train\_loss:0.355, Test\_acc:71.1%, Test\_loss:0.924, Lr:1.84E-02

Epoch: 7, Train\_acc:95.6%, Train\_loss:0.158, Test\_acc:74.4%, Test\_loss:0.891, Lr:1.84E-02

Epoch: 8, Train\_acc:98.3%, Train\_loss:0.084, Test\_acc:70.3%, Test\_loss:1.104, Lr:1.69E-02

Epoch: 9, Train\_acc:98.4%, Train\_loss:0.059, Test\_acc:77.5%, Test\_loss:0.865, Lr:1.69E-02

Epoch:10, Train\_acc:99.1%, Train\_loss:0.029, Test\_acc:78.1%, Test\_loss:0.909, Lr:1.69E-02

Epoch:11, Train\_acc:97.2%, Train\_loss:0.104, Test\_acc:78.1%, Test\_loss:0.809, Lr:1.69E-02

Epoch:12, Train\_acc:98.8%, Train\_loss:0.033, Test\_acc:79.4%, Test\_loss:0.906, Lr:1.56E-02

Epoch:13, Train\_acc:100.0%, Train\_loss:0.006, Test\_acc:79.4%, Test\_loss:0.910, Lr:1.56E-02

Epoch:14, Train\_acc:100.0%, Train\_loss:0.003, Test\_acc:79.7%, Test\_loss:0.835, Lr:1.56E-02

Epoch:15, Train\_acc:99.9%, Train\_loss:0.004, Test\_acc:78.6%, Test\_loss:0.941, Lr:1.56E-02

Epoch:16, Train\_acc:99.9%, Train\_loss:0.005, Test\_acc:76.9%, Test\_loss:1.186, Lr:1.43E-02

Epoch:17, Train\_acc:100.0%, Train\_loss:0.003, Test\_acc:79.4%, Test\_loss:0.978, Lr:1.43E-02

Epoch:18, Train\_acc:100.0%, Train\_loss:0.001, Test\_acc:80.3%, Test\_loss:0.971, Lr:1.43E-02

Epoch:19, Train\_acc:99.9%, Train\_loss:0.005, Test\_acc:80.8%, Test\_loss:0.918, Lr:1.43E-02

Epoch:20, Train\_acc:100.0%, Train\_loss:0.001, Test\_acc:79.7%, Test\_loss:1.107, Lr:1.32E-02

Epoch:21, Train\_acc:100.0%, Train\_loss:0.001, Test\_acc:79.2%, Test\_loss:0.988, Lr:1.32E-02

Epoch:22, Train\_acc:99.9%, Train\_loss:0.002, Test\_acc:78.6%, Test\_loss:1.057, Lr:1.32E-02

Epoch:23, Train\_acc:100.0%, Train\_loss:0.001, Test\_acc:77.8%, Test\_loss:1.053, Lr:1.32E-02

Epoch:24, Train\_acc:100.0%, Train\_loss:0.001, Test\_acc:79.4%, Test\_loss:1.050, Lr:1.21E-02

Epoch:25, Train\_acc:99.9%, Train\_loss:0.001, Test\_acc:79.4%, Test\_loss:1.102, Lr:1.21E-02

图表, 折线图, 直方图

描述已自动生成

全模型训练，学习率0.01

Epoch: 1, Train\_acc:21.8%, Train\_loss:2.323, Test\_acc:37.2%, Test\_loss:1.861, Lr:1.00E-02

Epoch: 2, Train\_acc:42.7%, Train\_loss:1.637, Test\_acc:47.8%, Test\_loss:1.532, Lr:1.00E-02

Epoch: 3, Train\_acc:56.2%, Train\_loss:1.218, Test\_acc:42.2%, Test\_loss:1.689, Lr:1.00E-02

Epoch: 4, Train\_acc:70.8%, Train\_loss:0.867, Test\_acc:58.9%, Test\_loss:1.299, Lr:9.20E-03

Epoch: 5, Train\_acc:76.6%, Train\_loss:0.729, Test\_acc:65.6%, Test\_loss:1.006, Lr:9.20E-03

Epoch: 6, Train\_acc:86.7%, Train\_loss:0.394, Test\_acc:60.0%, Test\_loss:1.103, Lr:9.20E-03

Epoch: 7, Train\_acc:91.8%, Train\_loss:0.301, Test\_acc:73.9%, Test\_loss:0.764, Lr:9.20E-03

Epoch: 8, Train\_acc:97.3%, Train\_loss:0.101, Test\_acc:75.8%, Test\_loss:0.719, Lr:8.46E-03

Epoch: 9, Train\_acc:97.3%, Train\_loss:0.084, Test\_acc:76.4%, Test\_loss:0.849, Lr:8.46E-03

Epoch:10, Train\_acc:97.4%, Train\_loss:0.085, Test\_acc:78.9%, Test\_loss:0.842, Lr:8.46E-03

Epoch:11, Train\_acc:99.3%, Train\_loss:0.031, Test\_acc:77.2%, Test\_loss:0.783, Lr:8.46E-03

Epoch:12, Train\_acc:99.3%, Train\_loss:0.029, Test\_acc:77.8%, Test\_loss:0.936, Lr:7.79E-03

Epoch:13, Train\_acc:99.6%, Train\_loss:0.021, Test\_acc:76.9%, Test\_loss:0.880, Lr:7.79E-03

Epoch:14, Train\_acc:99.9%, Train\_loss:0.007, Test\_acc:78.3%, Test\_loss:0.815, Lr:7.79E-03

Epoch:15, Train\_acc:98.6%, Train\_loss:0.056, Test\_acc:71.4%, Test\_loss:1.215, Lr:7.79E-03

Epoch:16, Train\_acc:98.7%, Train\_loss:0.057, Test\_acc:78.1%, Test\_loss:0.801, Lr:7.16E-03

Epoch:17, Train\_acc:99.6%, Train\_loss:0.018, Test\_acc:77.5%, Test\_loss:0.813, Lr:7.16E-03

Epoch:18, Train\_acc:99.2%, Train\_loss:0.022, Test\_acc:79.7%, Test\_loss:0.782, Lr:7.16E-03

Epoch:19, Train\_acc:99.5%, Train\_loss:0.016, Test\_acc:79.4%, Test\_loss:0.859, Lr:7.16E-03

Epoch:20, Train\_acc:99.8%, Train\_loss:0.010, Test\_acc:78.6%, Test\_loss:0.869, Lr:6.59E-03

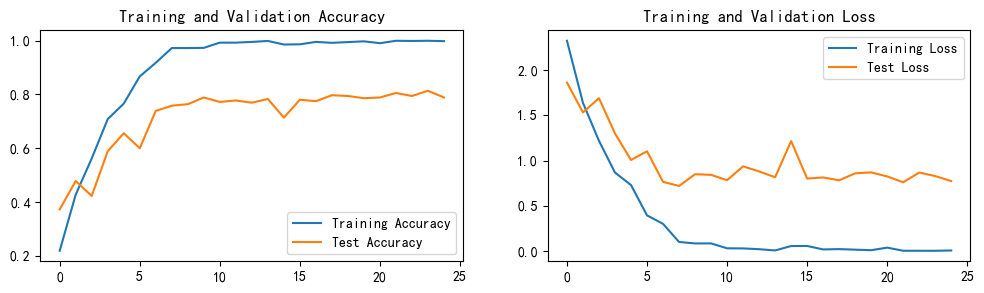
Epoch:21, Train\_acc:99.1%, Train\_loss:0.038, Test\_acc:78.9%, Test\_loss:0.824, Lr:6.59E-03

Epoch:22, Train\_acc:100.0%, Train\_loss:0.004, Test\_acc:80.6%, Test\_loss:0.760, Lr:6.59E-03

Epoch:23, Train\_acc:99.9%, Train\_loss:0.003, Test\_acc:79.4%, Test\_loss:0.868, Lr:6.59E-03

Epoch:24, Train\_acc:100.0%, Train\_loss:0.003, Test\_acc:81.4%, Test\_loss:0.828, Lr:6.06E-03

Epoch:25, Train\_acc:99.9%, Train\_loss:0.007, Test\_acc:78.9%, Test\_loss:0.773, Lr:6.06E-03



全模型训练，学习率0.005

Epoch: 1, Train\_acc:19.2%, Train\_loss:2.452, Test\_acc:25.3%, Test\_loss:2.062, Lr:5.00E-03

Epoch: 2, Train\_acc:37.4%, Train\_loss:1.820, Test\_acc:50.3%, Test\_loss:1.522, Lr:5.00E-03

Epoch: 3, Train\_acc:47.3%, Train\_loss:1.437, Test\_acc:61.7%, Test\_loss:1.230, Lr:5.00E-03

Epoch: 4, Train\_acc:60.2%, Train\_loss:1.121, Test\_acc:62.8%, Test\_loss:1.077, Lr:4.60E-03

Epoch: 5, Train\_acc:70.1%, Train\_loss:0.854, Test\_acc:62.5%, Test\_loss:1.052, Lr:4.60E-03

Epoch: 6, Train\_acc:78.6%, Train\_loss:0.613, Test\_acc:68.1%, Test\_loss:1.018, Lr:4.60E-03

Epoch: 7, Train\_acc:86.0%, Train\_loss:0.428, Test\_acc:73.6%, Test\_loss:0.817, Lr:4.60E-03

Epoch: 8, Train\_acc:88.2%, Train\_loss:0.335, Test\_acc:76.1%, Test\_loss:0.848, Lr:4.23E-03

Epoch: 9, Train\_acc:93.8%, Train\_loss:0.186, Test\_acc:75.6%, Test\_loss:0.828, Lr:4.23E-03

Epoch:10, Train\_acc:93.3%, Train\_loss:0.174, Test\_acc:70.0%, Test\_loss:1.117, Lr:4.23E-03

Epoch:11, Train\_acc:96.1%, Train\_loss:0.120, Test\_acc:76.1%, Test\_loss:0.841, Lr:4.23E-03

Epoch:12, Train\_acc:97.4%, Train\_loss:0.084, Test\_acc:78.6%, Test\_loss:0.824, Lr:3.89E-03

Epoch:13, Train\_acc:97.2%, Train\_loss:0.100, Test\_acc:73.6%, Test\_loss:0.947, Lr:3.89E-03

Epoch:14, Train\_acc:98.5%, Train\_loss:0.052, Test\_acc:76.9%, Test\_loss:0.848, Lr:3.89E-03

Epoch:15, Train\_acc:98.8%, Train\_loss:0.039, Test\_acc:74.4%, Test\_loss:1.042, Lr:3.89E-03

Epoch:16, Train\_acc:99.3%, Train\_loss:0.025, Test\_acc:81.4%, Test\_loss:0.747, Lr:3.58E-03

Epoch:17, Train\_acc:99.6%, Train\_loss:0.020, Test\_acc:81.7%, Test\_loss:0.824, Lr:3.58E-03

Epoch:18, Train\_acc:99.4%, Train\_loss:0.017, Test\_acc:73.6%, Test\_loss:1.183, Lr:3.58E-03

Epoch:19, Train\_acc:98.8%, Train\_loss:0.026, Test\_acc:80.0%, Test\_loss:0.800, Lr:3.58E-03

Epoch:20, Train\_acc:99.2%, Train\_loss:0.026, Test\_acc:79.7%, Test\_loss:0.787, Lr:3.30E-03

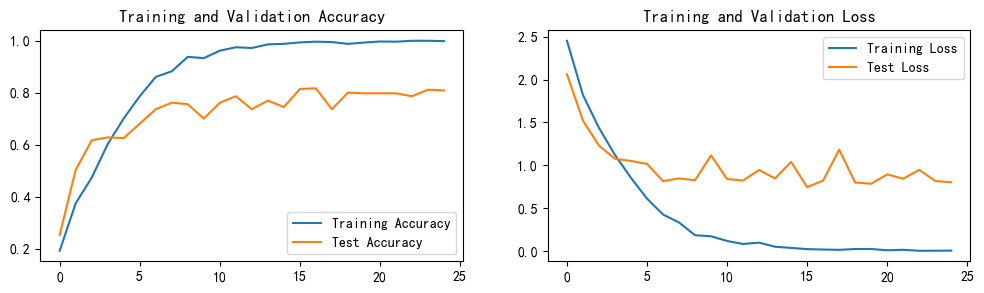
Epoch:21, Train\_acc:99.7%, Train\_loss:0.011, Test\_acc:79.7%, Test\_loss:0.895, Lr:3.30E-03

Epoch:22, Train\_acc:99.6%, Train\_loss:0.017, Test\_acc:79.7%, Test\_loss:0.845, Lr:3.30E-03

Epoch:23, Train\_acc:99.9%, Train\_loss:0.005, Test\_acc:78.6%, Test\_loss:0.949, Lr:3.30E-03

Epoch:24, Train\_acc:99.9%, Train\_loss:0.006, Test\_acc:81.1%, Test\_loss:0.818, Lr:3.03E-03

Epoch:25, Train\_acc:99.8%, Train\_loss:0.007, Test\_acc:80.8%, Test\_loss:0.803, Lr:3.03E-03



全模型训练，学习率0.001

Epoch: 1, Train\_acc:11.6%, Train\_loss:2.733, Test\_acc:13.9%, Test\_loss:2.560, Lr:1.00E-03

Epoch: 2, Train\_acc:17.1%, Train\_loss:2.469, Test\_acc:20.6%, Test\_loss:2.324, Lr:1.00E-03

Epoch: 3, Train\_acc:23.8%, Train\_loss:2.210, Test\_acc:26.7%, Test\_loss:2.121, Lr:1.00E-03

Epoch: 4, Train\_acc:27.1%, Train\_loss:2.048, Test\_acc:33.3%, Test\_loss:1.951, Lr:9.20E-04

Epoch: 5, Train\_acc:35.1%, Train\_loss:1.876, Test\_acc:38.9%, Test\_loss:1.766, Lr:9.20E-04

Epoch: 6, Train\_acc:38.8%, Train\_loss:1.769, Test\_acc:41.9%, Test\_loss:1.637, Lr:9.20E-04

Epoch: 7, Train\_acc:43.0%, Train\_loss:1.578, Test\_acc:49.2%, Test\_loss:1.531, Lr:9.20E-04

Epoch: 8, Train\_acc:47.8%, Train\_loss:1.461, Test\_acc:51.9%, Test\_loss:1.398, Lr:8.46E-04

Epoch: 9, Train\_acc:51.0%, Train\_loss:1.344, Test\_acc:50.6%, Test\_loss:1.397, Lr:8.46E-04

Epoch:10, Train\_acc:56.1%, Train\_loss:1.227, Test\_acc:55.0%, Test\_loss:1.266, Lr:8.46E-04

Epoch:11, Train\_acc:57.4%, Train\_loss:1.179, Test\_acc:54.7%, Test\_loss:1.198, Lr:8.46E-04

Epoch:12, Train\_acc:63.6%, Train\_loss:1.042, Test\_acc:59.2%, Test\_loss:1.169, Lr:7.79E-04

Epoch:13, Train\_acc:65.2%, Train\_loss:0.973, Test\_acc:59.2%, Test\_loss:1.121, Lr:7.79E-04

Epoch:14, Train\_acc:70.1%, Train\_loss:0.912, Test\_acc:62.8%, Test\_loss:1.081, Lr:7.79E-04

Epoch:15, Train\_acc:69.7%, Train\_loss:0.853, Test\_acc:64.2%, Test\_loss:1.047, Lr:7.79E-04

Epoch:16, Train\_acc:72.2%, Train\_loss:0.786, Test\_acc:64.4%, Test\_loss:0.978, Lr:7.16E-04

Epoch:17, Train\_acc:75.8%, Train\_loss:0.715, Test\_acc:65.6%, Test\_loss:1.008, Lr:7.16E-04

Epoch:18, Train\_acc:76.5%, Train\_loss:0.673, Test\_acc:66.4%, Test\_loss:0.990, Lr:7.16E-04

Epoch:19, Train\_acc:81.1%, Train\_loss:0.568, Test\_acc:67.5%, Test\_loss:0.969, Lr:7.16E-04

Epoch:20, Train\_acc:81.2%, Train\_loss:0.521, Test\_acc:65.3%, Test\_loss:0.995, Lr:6.59E-04

Epoch:21, Train\_acc:84.7%, Train\_loss:0.483, Test\_acc:68.9%, Test\_loss:0.978, Lr:6.59E-04

Epoch:22, Train\_acc:84.0%, Train\_loss:0.459, Test\_acc:69.7%, Test\_loss:0.877, Lr:6.59E-04

Epoch:23, Train\_acc:85.4%, Train\_loss:0.417, Test\_acc:69.7%, Test\_loss:0.894, Lr:6.59E-04

Epoch:24, Train\_acc:84.4%, Train\_loss:0.428, Test\_acc:71.1%, Test\_loss:0.959, Lr:6.06E-04

Epoch:25, Train\_acc:87.6%, Train\_loss:0.385, Test\_acc:71.9%, Test\_loss:0.850, Lr:6.06E-04

图表, 折线图, 直方图

描述已自动生成

全模型训练，学习率0.0005

Epoch: 1, Train\_acc:10.6%, Train\_loss:2.818, Test\_acc:13.1%, Test\_loss:2.741, Lr:5.00E-04

Epoch: 2, Train\_acc:15.6%, Train\_loss:2.681, Test\_acc:13.9%, Test\_loss:2.613, Lr:5.00E-04

Epoch: 3, Train\_acc:16.8%, Train\_loss:2.563, Test\_acc:14.7%, Test\_loss:2.480, Lr:5.00E-04

Epoch: 4, Train\_acc:20.4%, Train\_loss:2.416, Test\_acc:16.9%, Test\_loss:2.380, Lr:4.60E-04

Epoch: 5, Train\_acc:22.8%, Train\_loss:2.306, Test\_acc:20.6%, Test\_loss:2.273, Lr:4.60E-04

Epoch: 6, Train\_acc:24.4%, Train\_loss:2.217, Test\_acc:26.4%, Test\_loss:2.163, Lr:4.60E-04

Epoch: 7, Train\_acc:27.6%, Train\_loss:2.116, Test\_acc:29.4%, Test\_loss:2.073, Lr:4.60E-04

Epoch: 8, Train\_acc:29.4%, Train\_loss:2.022, Test\_acc:32.2%, Test\_loss:2.003, Lr:4.23E-04

Epoch: 9, Train\_acc:30.6%, Train\_loss:1.974, Test\_acc:34.7%, Test\_loss:1.901, Lr:4.23E-04

Epoch:10, Train\_acc:33.3%, Train\_loss:1.876, Test\_acc:39.4%, Test\_loss:1.835, Lr:4.23E-04

Epoch:11, Train\_acc:36.5%, Train\_loss:1.792, Test\_acc:40.0%, Test\_loss:1.750, Lr:4.23E-04

Epoch:12, Train\_acc:37.5%, Train\_loss:1.764, Test\_acc:42.5%, Test\_loss:1.702, Lr:3.89E-04

Epoch:13, Train\_acc:41.5%, Train\_loss:1.667, Test\_acc:44.4%, Test\_loss:1.606, Lr:3.89E-04

Epoch:14, Train\_acc:42.9%, Train\_loss:1.593, Test\_acc:45.6%, Test\_loss:1.551, Lr:3.89E-04

Epoch:15, Train\_acc:45.7%, Train\_loss:1.501, Test\_acc:46.9%, Test\_loss:1.535, Lr:3.89E-04

Epoch:16, Train\_acc:46.9%, Train\_loss:1.486, Test\_acc:49.4%, Test\_loss:1.507, Lr:3.58E-04

Epoch:17, Train\_acc:50.9%, Train\_loss:1.390, Test\_acc:50.3%, Test\_loss:1.466, Lr:3.58E-04

Epoch:18, Train\_acc:50.7%, Train\_loss:1.359, Test\_acc:48.1%, Test\_loss:1.408, Lr:3.58E-04

Epoch:19, Train\_acc:53.5%, Train\_loss:1.317, Test\_acc:53.1%, Test\_loss:1.346, Lr:3.58E-04

Epoch:20, Train\_acc:56.3%, Train\_loss:1.247, Test\_acc:52.5%, Test\_loss:1.349, Lr:3.30E-04

Epoch:21, Train\_acc:56.7%, Train\_loss:1.207, Test\_acc:54.4%, Test\_loss:1.277, Lr:3.30E-04

Epoch:22, Train\_acc:57.5%, Train\_loss:1.173, Test\_acc:55.6%, Test\_loss:1.275, Lr:3.30E-04

Epoch:23, Train\_acc:60.3%, Train\_loss:1.119, Test\_acc:57.8%, Test\_loss:1.237, Lr:3.30E-04

Epoch:24, Train\_acc:58.3%, Train\_loss:1.120, Test\_acc:58.1%, Test\_loss:1.195, Lr:3.03E-04

Epoch:25, Train\_acc:61.9%, Train\_loss:1.072, Test\_acc:56.7%, Test\_loss:1.205, Lr:3.03E-04

图表, 折线图, 直方图

描述已自动生成

只训练最后一层，学习率0.1

Epoch: 1, Train\_acc:15.6%, Train\_loss:7.064, Test\_acc:25.3%, Test\_loss:4.438, Lr:1.00E-01

Epoch: 2, Train\_acc:26.5%, Train\_loss:5.401, Test\_acc:28.6%, Test\_loss:3.739, Lr:1.00E-01

Epoch: 3, Train\_acc:33.3%, Train\_loss:4.350, Test\_acc:35.6%, Test\_loss:3.152, Lr:1.00E-01

Epoch: 4, Train\_acc:36.7%, Train\_loss:4.095, Test\_acc:31.7%, Test\_loss:3.856, Lr:9.20E-02

Epoch: 5, Train\_acc:38.3%, Train\_loss:3.634, Test\_acc:28.9%, Test\_loss:3.286, Lr:9.20E-02

Epoch: 6, Train\_acc:41.5%, Train\_loss:3.569, Test\_acc:36.9%, Test\_loss:3.248, Lr:9.20E-02

Epoch: 7, Train\_acc:44.5%, Train\_loss:3.317, Test\_acc:38.9%, Test\_loss:3.141, Lr:9.20E-02

Epoch: 8, Train\_acc:46.9%, Train\_loss:3.034, Test\_acc:33.3%, Test\_loss:3.125, Lr:8.46E-02

Epoch: 9, Train\_acc:46.5%, Train\_loss:2.874, Test\_acc:37.2%, Test\_loss:3.264, Lr:8.46E-02

Epoch:10, Train\_acc:50.1%, Train\_loss:2.896, Test\_acc:40.3%, Test\_loss:2.825, Lr:8.46E-02

Epoch:11, Train\_acc:50.7%, Train\_loss:2.618, Test\_acc:39.2%, Test\_loss:3.179, Lr:8.46E-02

Epoch:12, Train\_acc:50.5%, Train\_loss:2.639, Test\_acc:38.3%, Test\_loss:3.123, Lr:7.79E-02

Epoch:13, Train\_acc:51.1%, Train\_loss:2.561, Test\_acc:41.4%, Test\_loss:2.622, Lr:7.79E-02

Epoch:14, Train\_acc:53.1%, Train\_loss:2.368, Test\_acc:38.6%, Test\_loss:3.186, Lr:7.79E-02

Epoch:15, Train\_acc:53.3%, Train\_loss:2.328, Test\_acc:41.4%, Test\_loss:2.898, Lr:7.79E-02

Epoch:16, Train\_acc:55.0%, Train\_loss:2.161, Test\_acc:40.6%, Test\_loss:2.999, Lr:7.16E-02

Epoch:17, Train\_acc:54.6%, Train\_loss:2.301, Test\_acc:42.8%, Test\_loss:2.488, Lr:7.16E-02

Epoch:18, Train\_acc:55.1%, Train\_loss:2.098, Test\_acc:43.1%, Test\_loss:2.979, Lr:7.16E-02

Epoch:19, Train\_acc:54.9%, Train\_loss:2.165, Test\_acc:47.8%, Test\_loss:2.455, Lr:7.16E-02

Epoch:20, Train\_acc:58.1%, Train\_loss:2.032, Test\_acc:47.8%, Test\_loss:2.263, Lr:6.59E-02

Epoch:21, Train\_acc:59.5%, Train\_loss:1.906, Test\_acc:46.1%, Test\_loss:2.306, Lr:6.59E-02

Epoch:22, Train\_acc:57.4%, Train\_loss:1.962, Test\_acc:46.7%, Test\_loss:2.307, Lr:6.59E-02

Epoch:23, Train\_acc:59.9%, Train\_loss:1.791, Test\_acc:46.1%, Test\_loss:2.185, Lr:6.59E-02

Epoch:24, Train\_acc:60.6%, Train\_loss:1.774, Test\_acc:40.3%, Test\_loss:2.761, Lr:6.06E-02

Epoch:25, Train\_acc:60.8%, Train\_loss:1.769, Test\_acc:43.3%, Test\_loss:2.564, Lr:6.06E-02

图表, 折线图

描述已自动生成

只训练最后一层，学习率0.05

Epoch: 1, Train\_acc:18.6%, Train\_loss:3.319, Test\_acc:28.3%, Test\_loss:2.434, Lr:5.00E-02

Epoch: 2, Train\_acc:29.4%, Train\_loss:2.633, Test\_acc:30.8%, Test\_loss:2.442, Lr:5.00E-02

Epoch: 3, Train\_acc:34.0%, Train\_loss:2.527, Test\_acc:35.8%, Test\_loss:2.075, Lr:5.00E-02

Epoch: 4, Train\_acc:36.6%, Train\_loss:2.290, Test\_acc:38.1%, Test\_loss:2.054, Lr:4.60E-02

Epoch: 5, Train\_acc:45.3%, Train\_loss:1.966, Test\_acc:40.3%, Test\_loss:1.892, Lr:4.60E-02

Epoch: 6, Train\_acc:45.7%, Train\_loss:1.850, Test\_acc:34.7%, Test\_loss:1.963, Lr:4.60E-02

Epoch: 7, Train\_acc:46.9%, Train\_loss:1.809, Test\_acc:43.9%, Test\_loss:1.709, Lr:4.60E-02

Epoch: 8, Train\_acc:49.9%, Train\_loss:1.749, Test\_acc:42.2%, Test\_loss:1.811, Lr:4.23E-02

Epoch: 9, Train\_acc:50.1%, Train\_loss:1.679, Test\_acc:38.3%, Test\_loss:2.137, Lr:4.23E-02

Epoch:10, Train\_acc:53.2%, Train\_loss:1.507, Test\_acc:42.2%, Test\_loss:1.884, Lr:4.23E-02

Epoch:11, Train\_acc:52.8%, Train\_loss:1.595, Test\_acc:40.0%, Test\_loss:2.134, Lr:4.23E-02

Epoch:12, Train\_acc:52.7%, Train\_loss:1.565, Test\_acc:43.1%, Test\_loss:1.780, Lr:3.89E-02

Epoch:13, Train\_acc:55.5%, Train\_loss:1.486, Test\_acc:47.2%, Test\_loss:1.572, Lr:3.89E-02

Epoch:14, Train\_acc:56.2%, Train\_loss:1.468, Test\_acc:44.4%, Test\_loss:1.753, Lr:3.89E-02

Epoch:15, Train\_acc:56.4%, Train\_loss:1.454, Test\_acc:47.5%, Test\_loss:1.636, Lr:3.89E-02

Epoch:16, Train\_acc:58.8%, Train\_loss:1.332, Test\_acc:39.4%, Test\_loss:1.860, Lr:3.58E-02

Epoch:17, Train\_acc:57.0%, Train\_loss:1.383, Test\_acc:43.6%, Test\_loss:1.767, Lr:3.58E-02

Epoch:18, Train\_acc:59.1%, Train\_loss:1.385, Test\_acc:43.3%, Test\_loss:1.849, Lr:3.58E-02

Epoch:19, Train\_acc:61.3%, Train\_loss:1.264, Test\_acc:44.2%, Test\_loss:1.655, Lr:3.58E-02

Epoch:20, Train\_acc:60.1%, Train\_loss:1.255, Test\_acc:44.7%, Test\_loss:1.663, Lr:3.30E-02

Epoch:21, Train\_acc:64.0%, Train\_loss:1.143, Test\_acc:41.7%, Test\_loss:1.968, Lr:3.30E-02

Epoch:22, Train\_acc:63.9%, Train\_loss:1.144, Test\_acc:45.3%, Test\_loss:1.753, Lr:3.30E-02

Epoch:23, Train\_acc:61.5%, Train\_loss:1.203, Test\_acc:48.3%, Test\_loss:1.697, Lr:3.30E-02

Epoch:24, Train\_acc:63.5%, Train\_loss:1.154, Test\_acc:45.8%, Test\_loss:1.780, Lr:3.03E-02

Epoch:25, Train\_acc:62.0%, Train\_loss:1.186, Test\_acc:47.2%, Test\_loss:1.684, Lr:3.03E-02

图表, 折线图

描述已自动生成

只训练最后一层，学习率0.02

Epoch: 1, Train\_acc:19.5%, Train\_loss:2.440, Test\_acc:26.9%, Test\_loss:2.078, Lr:2.00E-02

Epoch: 2, Train\_acc:31.8%, Train\_loss:2.010, Test\_acc:33.3%, Test\_loss:1.937, Lr:2.00E-02

Epoch: 3, Train\_acc:37.8%, Train\_loss:1.838, Test\_acc:37.2%, Test\_loss:1.815, Lr:2.00E-02

Epoch: 4, Train\_acc:41.2%, Train\_loss:1.717, Test\_acc:35.0%, Test\_loss:1.843, Lr:1.84E-02

Epoch: 5, Train\_acc:42.4%, Train\_loss:1.639, Test\_acc:36.4%, Test\_loss:1.797, Lr:1.84E-02

Epoch: 6, Train\_acc:47.2%, Train\_loss:1.565, Test\_acc:36.7%, Test\_loss:1.696, Lr:1.84E-02

Epoch: 7, Train\_acc:48.9%, Train\_loss:1.502, Test\_acc:40.3%, Test\_loss:1.707, Lr:1.84E-02

Epoch: 8, Train\_acc:49.0%, Train\_loss:1.462, Test\_acc:40.6%, Test\_loss:1.690, Lr:1.69E-02

Epoch: 9, Train\_acc:54.8%, Train\_loss:1.357, Test\_acc:38.9%, Test\_loss:1.672, Lr:1.69E-02

Epoch:10, Train\_acc:53.8%, Train\_loss:1.361, Test\_acc:41.9%, Test\_loss:1.700, Lr:1.69E-02

Epoch:11, Train\_acc:54.7%, Train\_loss:1.321, Test\_acc:43.1%, Test\_loss:1.639, Lr:1.69E-02

Epoch:12, Train\_acc:53.5%, Train\_loss:1.344, Test\_acc:39.7%, Test\_loss:1.763, Lr:1.56E-02

Epoch:13, Train\_acc:56.3%, Train\_loss:1.280, Test\_acc:43.6%, Test\_loss:1.627, Lr:1.56E-02

Epoch:14, Train\_acc:57.3%, Train\_loss:1.281, Test\_acc:46.1%, Test\_loss:1.589, Lr:1.56E-02

Epoch:15, Train\_acc:59.6%, Train\_loss:1.196, Test\_acc:41.7%, Test\_loss:1.665, Lr:1.56E-02

Epoch:16, Train\_acc:59.4%, Train\_loss:1.244, Test\_acc:46.9%, Test\_loss:1.579, Lr:1.43E-02

Epoch:17, Train\_acc:59.2%, Train\_loss:1.169, Test\_acc:42.5%, Test\_loss:1.595, Lr:1.43E-02

Epoch:18, Train\_acc:59.0%, Train\_loss:1.200, Test\_acc:43.6%, Test\_loss:1.583, Lr:1.43E-02

Epoch:19, Train\_acc:60.5%, Train\_loss:1.167, Test\_acc:45.8%, Test\_loss:1.523, Lr:1.43E-02

Epoch:20, Train\_acc:63.2%, Train\_loss:1.116, Test\_acc:46.4%, Test\_loss:1.545, Lr:1.32E-02

Epoch:21, Train\_acc:62.0%, Train\_loss:1.106, Test\_acc:44.7%, Test\_loss:1.566, Lr:1.32E-02

Epoch:22, Train\_acc:61.3%, Train\_loss:1.125, Test\_acc:45.0%, Test\_loss:1.565, Lr:1.32E-02

Epoch:23, Train\_acc:61.0%, Train\_loss:1.110, Test\_acc:48.3%, Test\_loss:1.545, Lr:1.32E-02

Epoch:24, Train\_acc:63.9%, Train\_loss:1.058, Test\_acc:45.0%, Test\_loss:1.519, Lr:1.21E-02

Epoch:25, Train\_acc:65.3%, Train\_loss:1.029, Test\_acc:49.7%, Test\_loss:1.493, Lr:1.21E-02

图表, 折线图, 直方图

描述已自动生成

只训练最后一层，学习率0.01

Epoch: 1, Train\_acc:19.0%, Train\_loss:2.463, Test\_acc:22.2%, Test\_loss:2.213, Lr:1.00E-02

Epoch: 2, Train\_acc:29.9%, Train\_loss:2.052, Test\_acc:30.3%, Test\_loss:2.030, Lr:1.00E-02

Epoch: 3, Train\_acc:34.8%, Train\_loss:1.900, Test\_acc:36.1%, Test\_loss:1.948, Lr:1.00E-02

Epoch: 4, Train\_acc:39.0%, Train\_loss:1.796, Test\_acc:37.5%, Test\_loss:1.845, Lr:9.20E-03

Epoch: 5, Train\_acc:41.2%, Train\_loss:1.716, Test\_acc:38.6%, Test\_loss:1.838, Lr:9.20E-03

Epoch: 6, Train\_acc:43.1%, Train\_loss:1.638, Test\_acc:38.9%, Test\_loss:1.758, Lr:9.20E-03

Epoch: 7, Train\_acc:45.8%, Train\_loss:1.582, Test\_acc:39.4%, Test\_loss:1.744, Lr:9.20E-03

Epoch: 8, Train\_acc:46.9%, Train\_loss:1.552, Test\_acc:42.2%, Test\_loss:1.733, Lr:8.46E-03

Epoch: 9, Train\_acc:49.7%, Train\_loss:1.480, Test\_acc:44.2%, Test\_loss:1.660, Lr:8.46E-03

Epoch:10, Train\_acc:50.1%, Train\_loss:1.470, Test\_acc:43.9%, Test\_loss:1.628, Lr:8.46E-03

Epoch:11, Train\_acc:51.5%, Train\_loss:1.416, Test\_acc:43.1%, Test\_loss:1.708, Lr:8.46E-03

Epoch:12, Train\_acc:53.6%, Train\_loss:1.391, Test\_acc:45.0%, Test\_loss:1.657, Lr:7.79E-03

Epoch:13, Train\_acc:52.9%, Train\_loss:1.369, Test\_acc:43.1%, Test\_loss:1.686, Lr:7.79E-03

Epoch:14, Train\_acc:53.8%, Train\_loss:1.363, Test\_acc:40.6%, Test\_loss:1.641, Lr:7.79E-03

Epoch:15, Train\_acc:56.1%, Train\_loss:1.306, Test\_acc:45.6%, Test\_loss:1.619, Lr:7.79E-03

Epoch:16, Train\_acc:57.2%, Train\_loss:1.313, Test\_acc:43.6%, Test\_loss:1.634, Lr:7.16E-03

Epoch:17, Train\_acc:58.8%, Train\_loss:1.249, Test\_acc:46.1%, Test\_loss:1.595, Lr:7.16E-03

Epoch:18, Train\_acc:56.5%, Train\_loss:1.294, Test\_acc:44.4%, Test\_loss:1.599, Lr:7.16E-03

Epoch:19, Train\_acc:57.9%, Train\_loss:1.292, Test\_acc:46.1%, Test\_loss:1.586, Lr:7.16E-03

Epoch:20, Train\_acc:57.1%, Train\_loss:1.265, Test\_acc:46.7%, Test\_loss:1.629, Lr:6.59E-03

Epoch:21, Train\_acc:60.3%, Train\_loss:1.203, Test\_acc:46.4%, Test\_loss:1.605, Lr:6.59E-03

Epoch:22, Train\_acc:60.2%, Train\_loss:1.229, Test\_acc:47.5%, Test\_loss:1.567, Lr:6.59E-03

Epoch:23, Train\_acc:58.0%, Train\_loss:1.208, Test\_acc:45.8%, Test\_loss:1.618, Lr:6.59E-03

Epoch:24, Train\_acc:61.7%, Train\_loss:1.186, Test\_acc:45.8%, Test\_loss:1.553, Lr:6.06E-03

Epoch:25, Train\_acc:61.3%, Train\_loss:1.185, Test\_acc:48.1%, Test\_loss:1.565, Lr:6.06E-03

图表, 折线图, 直方图

描述已自动生成

只训练最后一层，学习率0.005

Epoch: 1, Train\_acc:18.1%, Train\_loss:2.571, Test\_acc:21.7%, Test\_loss:2.352, Lr:5.00E-03

Epoch: 2, Train\_acc:25.5%, Train\_loss:2.228, Test\_acc:27.5%, Test\_loss:2.158, Lr:5.00E-03

Epoch: 3, Train\_acc:30.3%, Train\_loss:2.041, Test\_acc:29.4%, Test\_loss:2.063, Lr:5.00E-03

Epoch: 4, Train\_acc:31.9%, Train\_loss:1.961, Test\_acc:33.3%, Test\_loss:1.977, Lr:4.60E-03

Epoch: 5, Train\_acc:36.5%, Train\_loss:1.876, Test\_acc:36.1%, Test\_loss:1.944, Lr:4.60E-03

Epoch: 6, Train\_acc:40.4%, Train\_loss:1.790, Test\_acc:32.5%, Test\_loss:1.906, Lr:4.60E-03

Epoch: 7, Train\_acc:41.0%, Train\_loss:1.757, Test\_acc:34.2%, Test\_loss:1.883, Lr:4.60E-03

Epoch: 8, Train\_acc:42.8%, Train\_loss:1.729, Test\_acc:40.0%, Test\_loss:1.820, Lr:4.23E-03

Epoch: 9, Train\_acc:46.0%, Train\_loss:1.637, Test\_acc:36.7%, Test\_loss:1.813, Lr:4.23E-03

Epoch:10, Train\_acc:46.9%, Train\_loss:1.630, Test\_acc:37.2%, Test\_loss:1.823, Lr:4.23E-03

Epoch:11, Train\_acc:47.4%, Train\_loss:1.585, Test\_acc:39.2%, Test\_loss:1.784, Lr:4.23E-03

Epoch:12, Train\_acc:46.9%, Train\_loss:1.587, Test\_acc:40.3%, Test\_loss:1.790, Lr:3.89E-03

Epoch:13, Train\_acc:48.6%, Train\_loss:1.539, Test\_acc:41.1%, Test\_loss:1.713, Lr:3.89E-03

Epoch:14, Train\_acc:50.2%, Train\_loss:1.518, Test\_acc:38.1%, Test\_loss:1.728, Lr:3.89E-03

Epoch:15, Train\_acc:50.4%, Train\_loss:1.504, Test\_acc:44.2%, Test\_loss:1.717, Lr:3.89E-03

Epoch:16, Train\_acc:53.1%, Train\_loss:1.481, Test\_acc:41.1%, Test\_loss:1.709, Lr:3.58E-03

Epoch:17, Train\_acc:51.7%, Train\_loss:1.452, Test\_acc:39.7%, Test\_loss:1.741, Lr:3.58E-03

Epoch:18, Train\_acc:52.0%, Train\_loss:1.451, Test\_acc:42.8%, Test\_loss:1.679, Lr:3.58E-03

Epoch:19, Train\_acc:53.2%, Train\_loss:1.455, Test\_acc:45.6%, Test\_loss:1.690, Lr:3.58E-03

Epoch:20, Train\_acc:54.6%, Train\_loss:1.410, Test\_acc:44.4%, Test\_loss:1.659, Lr:3.30E-03

Epoch:21, Train\_acc:54.4%, Train\_loss:1.405, Test\_acc:43.9%, Test\_loss:1.692, Lr:3.30E-03

Epoch:22, Train\_acc:52.4%, Train\_loss:1.424, Test\_acc:42.8%, Test\_loss:1.690, Lr:3.30E-03

Epoch:23, Train\_acc:54.0%, Train\_loss:1.395, Test\_acc:44.2%, Test\_loss:1.635, Lr:3.30E-03

Epoch:24, Train\_acc:53.6%, Train\_loss:1.399, Test\_acc:45.0%, Test\_loss:1.681, Lr:3.03E-03

Epoch:25, Train\_acc:56.4%, Train\_loss:1.363, Test\_acc:45.3%, Test\_loss:1.618, Lr:3.03E-03

图表, 折线图, 直方图

描述已自动生成

只训练最后一层，学习率0.001

Epoch: 1, Train\_acc:11.9%, Train\_loss:2.791, Test\_acc:13.6%, Test\_loss:2.662, Lr:1.00E-03

Epoch: 2, Train\_acc:17.2%, Train\_loss:2.590, Test\_acc:15.3%, Test\_loss:2.539, Lr:1.00E-03

Epoch: 3, Train\_acc:19.9%, Train\_loss:2.471, Test\_acc:16.4%, Test\_loss:2.445, Lr:1.00E-03

Epoch: 4, Train\_acc:20.8%, Train\_loss:2.391, Test\_acc:18.1%, Test\_loss:2.382, Lr:9.20E-04

Epoch: 5, Train\_acc:24.3%, Train\_loss:2.312, Test\_acc:19.2%, Test\_loss:2.322, Lr:9.20E-04

Epoch: 6, Train\_acc:23.3%, Train\_loss:2.280, Test\_acc:21.9%, Test\_loss:2.291, Lr:9.20E-04

Epoch: 7, Train\_acc:25.8%, Train\_loss:2.232, Test\_acc:21.4%, Test\_loss:2.257, Lr:9.20E-04

Epoch: 8, Train\_acc:28.1%, Train\_loss:2.177, Test\_acc:24.7%, Test\_loss:2.224, Lr:8.46E-04

Epoch: 9, Train\_acc:28.3%, Train\_loss:2.146, Test\_acc:27.5%, Test\_loss:2.161, Lr:8.46E-04

Epoch:10, Train\_acc:29.8%, Train\_loss:2.105, Test\_acc:28.1%, Test\_loss:2.151, Lr:8.46E-04

Epoch:11, Train\_acc:30.6%, Train\_loss:2.089, Test\_acc:29.2%, Test\_loss:2.123, Lr:8.46E-04

Epoch:12, Train\_acc:31.7%, Train\_loss:2.062, Test\_acc:30.3%, Test\_loss:2.116, Lr:7.79E-04

Epoch:13, Train\_acc:33.2%, Train\_loss:2.047, Test\_acc:30.6%, Test\_loss:2.106, Lr:7.79E-04

Epoch:14, Train\_acc:32.7%, Train\_loss:2.028, Test\_acc:31.4%, Test\_loss:2.076, Lr:7.79E-04

Epoch:15, Train\_acc:33.8%, Train\_loss:1.995, Test\_acc:32.2%, Test\_loss:2.080, Lr:7.79E-04

Epoch:16, Train\_acc:34.7%, Train\_loss:1.969, Test\_acc:31.4%, Test\_loss:2.060, Lr:7.16E-04

Epoch:17, Train\_acc:35.7%, Train\_loss:1.958, Test\_acc:33.1%, Test\_loss:2.068, Lr:7.16E-04

Epoch:18, Train\_acc:34.4%, Train\_loss:1.956, Test\_acc:33.1%, Test\_loss:2.037, Lr:7.16E-04

Epoch:19, Train\_acc:37.4%, Train\_loss:1.915, Test\_acc:32.5%, Test\_loss:2.041, Lr:7.16E-04

Epoch:20, Train\_acc:38.5%, Train\_loss:1.895, Test\_acc:32.5%, Test\_loss:2.002, Lr:6.59E-04

Epoch:21, Train\_acc:36.5%, Train\_loss:1.912, Test\_acc:33.3%, Test\_loss:1.996, Lr:6.59E-04

Epoch:22, Train\_acc:40.1%, Train\_loss:1.878, Test\_acc:34.2%, Test\_loss:1.989, Lr:6.59E-04

Epoch:23, Train\_acc:40.4%, Train\_loss:1.861, Test\_acc:35.0%, Test\_loss:1.984, Lr:6.59E-04

Epoch:24, Train\_acc:40.8%, Train\_loss:1.850, Test\_acc:35.0%, Test\_loss:1.967, Lr:6.06E-04

Epoch:25, Train\_acc:41.2%, Train\_loss:1.831, Test\_acc:35.6%, Test\_loss:1.973, Lr:6.06E-04

图表, 折线图, 直方图

描述已自动生成

增加了图片随机左右反转和倾斜10度的数据集：

训练全网络，学习率0.01：

Epoch: 1, Train\_acc:19.3%, Train\_loss:2.359, Test\_acc:33.1%, Test\_loss:1.866, Lr:1.00E-02

Epoch: 2, Train\_acc:38.0%, Train\_loss:1.734, Test\_acc:42.8%, Test\_loss:1.510, Lr:1.00E-02

Epoch: 3, Train\_acc:49.6%, Train\_loss:1.417, Test\_acc:59.7%, Test\_loss:1.219, Lr:1.00E-02

Epoch: 4, Train\_acc:59.1%, Train\_loss:1.206, Test\_acc:54.7%, Test\_loss:1.335, Lr:9.20E-03

Epoch: 5, Train\_acc:65.3%, Train\_loss:0.983, Test\_acc:63.6%, Test\_loss:1.020, Lr:9.20E-03

Epoch: 6, Train\_acc:73.5%, Train\_loss:0.775, Test\_acc:45.0%, Test\_loss:1.706, Lr:9.20E-03

Epoch: 7, Train\_acc:77.1%, Train\_loss:0.677, Test\_acc:67.8%, Test\_loss:0.949, Lr:9.20E-03

Epoch: 8, Train\_acc:82.3%, Train\_loss:0.493, Test\_acc:58.9%, Test\_loss:1.344, Lr:8.46E-03

Epoch: 9, Train\_acc:87.4%, Train\_loss:0.350, Test\_acc:73.9%, Test\_loss:0.729, Lr:8.46E-03

Epoch:10, Train\_acc:92.7%, Train\_loss:0.230, Test\_acc:72.5%, Test\_loss:0.896, Lr:8.46E-03

Epoch:11, Train\_acc:93.4%, Train\_loss:0.206, Test\_acc:75.6%, Test\_loss:0.861, Lr:8.46E-03

Epoch:12, Train\_acc:94.3%, Train\_loss:0.173, Test\_acc:78.6%, Test\_loss:0.715, Lr:7.79E-03

Epoch:13, Train\_acc:94.6%, Train\_loss:0.162, Test\_acc:74.4%, Test\_loss:0.802, Lr:7.79E-03

Epoch:14, Train\_acc:95.3%, Train\_loss:0.131, Test\_acc:81.4%, Test\_loss:0.662, Lr:7.79E-03

Epoch:15, Train\_acc:96.9%, Train\_loss:0.107, Test\_acc:78.3%, Test\_loss:0.878, Lr:7.79E-03

Epoch:16, Train\_acc:96.8%, Train\_loss:0.100, Test\_acc:74.2%, Test\_loss:0.901, Lr:7.16E-03

Epoch:17, Train\_acc:96.5%, Train\_loss:0.106, Test\_acc:80.8%, Test\_loss:0.631, Lr:7.16E-03

Epoch:18, Train\_acc:97.7%, Train\_loss:0.072, Test\_acc:79.2%, Test\_loss:0.680, Lr:7.16E-03

Epoch:19, Train\_acc:99.4%, Train\_loss:0.028, Test\_acc:76.9%, Test\_loss:0.896, Lr:7.16E-03

Epoch:20, Train\_acc:98.5%, Train\_loss:0.060, Test\_acc:79.4%, Test\_loss:0.790, Lr:6.59E-03

Epoch:21, Train\_acc:99.2%, Train\_loss:0.032, Test\_acc:81.9%, Test\_loss:0.723, Lr:6.59E-03

Epoch:22, Train\_acc:98.2%, Train\_loss:0.050, Test\_acc:80.3%, Test\_loss:0.789, Lr:6.59E-03

Epoch:23, Train\_acc:99.3%, Train\_loss:0.025, Test\_acc:81.1%, Test\_loss:0.751, Lr:6.59E-03

Epoch:24, Train\_acc:99.7%, Train\_loss:0.011, Test\_acc:82.8%, Test\_loss:0.774, Lr:6.06E-03

Epoch:25, Train\_acc:99.2%, Train\_loss:0.024, Test\_acc:83.6%, Test\_loss:0.667, Lr:6.06E-03

训练图片随机水平翻转

训练全网络，学习率0.01

Epoch: 1, Train\_acc:22.0%, Train\_loss:2.337, Test\_acc:35.6%, Test\_loss:1.863, Lr:1.00E-02

Epoch: 2, Train\_acc:41.3%, Train\_loss:1.669, Test\_acc:38.6%, Test\_loss:1.665, Lr:1.00E-02

Epoch: 3, Train\_acc:55.6%, Train\_loss:1.303, Test\_acc:39.2%, Test\_loss:1.793, Lr:1.00E-02

Epoch: 4, Train\_acc:63.8%, Train\_loss:1.062, Test\_acc:55.8%, Test\_loss:1.215, Lr:9.20E-03

Epoch: 5, Train\_acc:75.8%, Train\_loss:0.755, Test\_acc:62.8%, Test\_loss:1.060, Lr:9.20E-03

Epoch: 6, Train\_acc:80.6%, Train\_loss:0.571, Test\_acc:66.4%, Test\_loss:1.040, Lr:9.20E-03

Epoch: 7, Train\_acc:85.6%, Train\_loss:0.410, Test\_acc:69.2%, Test\_loss:0.972, Lr:9.20E-03

Epoch: 8, Train\_acc:90.4%, Train\_loss:0.305, Test\_acc:68.3%, Test\_loss:0.893, Lr:8.46E-03

Epoch: 9, Train\_acc:94.8%, Train\_loss:0.175, Test\_acc:72.5%, Test\_loss:1.116, Lr:8.46E-03

Epoch:10, Train\_acc:95.1%, Train\_loss:0.167, Test\_acc:74.7%, Test\_loss:0.809, Lr:8.46E-03

Epoch:11, Train\_acc:95.9%, Train\_loss:0.127, Test\_acc:73.9%, Test\_loss:0.882, Lr:8.46E-03

Epoch:12, Train\_acc:97.2%, Train\_loss:0.086, Test\_acc:71.4%, Test\_loss:1.088, Lr:7.79E-03

Epoch:13, Train\_acc:98.1%, Train\_loss:0.074, Test\_acc:75.0%, Test\_loss:0.898, Lr:7.79E-03

Epoch:14, Train\_acc:98.1%, Train\_loss:0.059, Test\_acc:75.8%, Test\_loss:0.940, Lr:7.79E-03

Epoch:15, Train\_acc:99.0%, Train\_loss:0.041, Test\_acc:77.8%, Test\_loss:0.916, Lr:7.79E-03

Epoch:16, Train\_acc:99.0%, Train\_loss:0.040, Test\_acc:77.5%, Test\_loss:0.755, Lr:7.16E-03

Epoch:17, Train\_acc:98.9%, Train\_loss:0.039, Test\_acc:75.8%, Test\_loss:0.852, Lr:7.16E-03

Epoch:18, Train\_acc:99.4%, Train\_loss:0.021, Test\_acc:78.1%, Test\_loss:0.925, Lr:7.16E-03

Epoch:19, Train\_acc:99.8%, Train\_loss:0.010, Test\_acc:75.8%, Test\_loss:0.991, Lr:7.16E-03

Epoch:20, Train\_acc:98.8%, Train\_loss:0.039, Test\_acc:73.9%, Test\_loss:1.045, Lr:6.59E-03

Epoch:21, Train\_acc:99.7%, Train\_loss:0.011, Test\_acc:75.3%, Test\_loss:1.097, Lr:6.59E-03

Epoch:22, Train\_acc:99.8%, Train\_loss:0.011, Test\_acc:76.9%, Test\_loss:0.977, Lr:6.59E-03

Epoch:23, Train\_acc:99.6%, Train\_loss:0.014, Test\_acc:76.9%, Test\_loss:1.047, Lr:6.59E-03

Epoch:24, Train\_acc:99.7%, Train\_loss:0.009, Test\_acc:76.4%, Test\_loss:1.035, Lr:6.06E-03

Epoch:25, Train\_acc:99.5%, Train\_loss:0.014, Test\_acc:76.4%, Test\_loss:0.932, Lr:6.06E-03

图表, 折线图, 直方图

描述已自动生成

图片随机水平翻转

学习率0.01，训练50轮，没有提高

Epoch: 1, Train\_acc:22.1%, Train\_loss:2.339, Test\_acc:39.2%, Test\_loss:1.782, Lr:1.00E-02

Epoch: 2, Train\_acc:42.5%, Train\_loss:1.663, Test\_acc:45.0%, Test\_loss:1.446, Lr:1.00E-02

Epoch: 3, Train\_acc:52.2%, Train\_loss:1.298, Test\_acc:45.3%, Test\_loss:1.604, Lr:1.00E-02

Epoch: 4, Train\_acc:62.7%, Train\_loss:1.091, Test\_acc:58.1%, Test\_loss:1.204, Lr:9.20E-03

Epoch: 5, Train\_acc:72.3%, Train\_loss:0.814, Test\_acc:61.9%, Test\_loss:1.057, Lr:9.20E-03

Epoch: 6, Train\_acc:82.4%, Train\_loss:0.517, Test\_acc:64.2%, Test\_loss:1.047, Lr:9.20E-03

Epoch: 7, Train\_acc:85.1%, Train\_loss:0.410, Test\_acc:67.5%, Test\_loss:1.070, Lr:9.20E-03

Epoch: 8, Train\_acc:89.9%, Train\_loss:0.314, Test\_acc:69.4%, Test\_loss:1.043, Lr:8.46E-03

Epoch: 9, Train\_acc:94.7%, Train\_loss:0.167, Test\_acc:73.9%, Test\_loss:0.837, Lr:8.46E-03

Epoch:10, Train\_acc:91.3%, Train\_loss:0.290, Test\_acc:71.1%, Test\_loss:1.056, Lr:8.46E-03

Epoch:11, Train\_acc:96.2%, Train\_loss:0.127, Test\_acc:77.2%, Test\_loss:0.846, Lr:8.46E-03

Epoch:12, Train\_acc:98.3%, Train\_loss:0.067, Test\_acc:65.3%, Test\_loss:1.266, Lr:7.79E-03

Epoch:13, Train\_acc:96.9%, Train\_loss:0.080, Test\_acc:78.3%, Test\_loss:0.796, Lr:7.79E-03

Epoch:14, Train\_acc:98.2%, Train\_loss:0.057, Test\_acc:80.0%, Test\_loss:0.871, Lr:7.79E-03

Epoch:15, Train\_acc:99.5%, Train\_loss:0.020, Test\_acc:77.5%, Test\_loss:0.958, Lr:7.79E-03

Epoch:16, Train\_acc:98.8%, Train\_loss:0.035, Test\_acc:75.8%, Test\_loss:0.906, Lr:7.16E-03

Epoch:17, Train\_acc:98.9%, Train\_loss:0.031, Test\_acc:76.9%, Test\_loss:0.888, Lr:7.16E-03

Epoch:18, Train\_acc:99.6%, Train\_loss:0.014, Test\_acc:78.9%, Test\_loss:0.890, Lr:7.16E-03

Epoch:19, Train\_acc:99.3%, Train\_loss:0.024, Test\_acc:74.7%, Test\_loss:1.225, Lr:7.16E-03

Epoch:20, Train\_acc:99.2%, Train\_loss:0.026, Test\_acc:78.3%, Test\_loss:0.829, Lr:6.59E-03

Epoch:21, Train\_acc:99.9%, Train\_loss:0.008, Test\_acc:78.6%, Test\_loss:0.942, Lr:6.59E-03

Epoch:22, Train\_acc:99.2%, Train\_loss:0.025, Test\_acc:79.2%, Test\_loss:0.959, Lr:6.59E-03

Epoch:23, Train\_acc:99.6%, Train\_loss:0.013, Test\_acc:79.7%, Test\_loss:0.898, Lr:6.59E-03

Epoch:24, Train\_acc:99.9%, Train\_loss:0.006, Test\_acc:81.4%, Test\_loss:0.788, Lr:6.06E-03

Epoch:25, Train\_acc:99.9%, Train\_loss:0.004, Test\_acc:81.1%, Test\_loss:0.934, Lr:6.06E-03

Epoch:26, Train\_acc:100.0%, Train\_loss:0.003, Test\_acc:78.9%, Test\_loss:0.940, Lr:6.06E-03

Epoch:27, Train\_acc:99.9%, Train\_loss:0.004, Test\_acc:78.6%, Test\_loss:0.913, Lr:6.06E-03

Epoch:28, Train\_acc:99.9%, Train\_loss:0.002, Test\_acc:80.8%, Test\_loss:0.906, Lr:5.58E-03

Epoch:29, Train\_acc:99.9%, Train\_loss:0.004, Test\_acc:79.4%, Test\_loss:1.103, Lr:5.58E-03

Epoch:30, Train\_acc:99.8%, Train\_loss:0.004, Test\_acc:80.3%, Test\_loss:0.985, Lr:5.58E-03

Epoch:31, Train\_acc:99.9%, Train\_loss:0.003, Test\_acc:78.6%, Test\_loss:1.013, Lr:5.58E-03

Epoch:32, Train\_acc:99.9%, Train\_loss:0.003, Test\_acc:79.7%, Test\_loss:0.999, Lr:5.13E-03

Epoch:33, Train\_acc:99.9%, Train\_loss:0.002, Test\_acc:80.3%, Test\_loss:1.022, Lr:5.13E-03

Epoch:34, Train\_acc:100.0%, Train\_loss:0.001, Test\_acc:80.0%, Test\_loss:0.990, Lr:5.13E-03

Epoch:35, Train\_acc:99.8%, Train\_loss:0.006, Test\_acc:78.3%, Test\_loss:1.010, Lr:5.13E-03

Epoch:36, Train\_acc:99.8%, Train\_loss:0.005, Test\_acc:80.8%, Test\_loss:1.104, Lr:4.72E-03

Epoch:37, Train\_acc:99.9%, Train\_loss:0.004, Test\_acc:79.7%, Test\_loss:1.039, Lr:4.72E-03

Epoch:38, Train\_acc:99.9%, Train\_loss:0.004, Test\_acc:79.2%, Test\_loss:1.044, Lr:4.72E-03

Epoch:39, Train\_acc:99.9%, Train\_loss:0.003, Test\_acc:79.7%, Test\_loss:1.173, Lr:4.72E-03

Epoch:40, Train\_acc:99.9%, Train\_loss:0.002, Test\_acc:81.9%, Test\_loss:0.975, Lr:4.34E-03

Epoch:41, Train\_acc:100.0%, Train\_loss:0.001, Test\_acc:80.0%, Test\_loss:1.222, Lr:4.34E-03

Epoch:42, Train\_acc:100.0%, Train\_loss:0.002, Test\_acc:80.3%, Test\_loss:0.954, Lr:4.34E-03

Epoch:43, Train\_acc:100.0%, Train\_loss:0.002, Test\_acc:79.7%, Test\_loss:1.090, Lr:4.34E-03

Epoch:44, Train\_acc:99.9%, Train\_loss:0.006, Test\_acc:79.4%, Test\_loss:1.178, Lr:4.00E-03

Epoch:45, Train\_acc:99.8%, Train\_loss:0.006, Test\_acc:80.6%, Test\_loss:0.956, Lr:4.00E-03

Epoch:46, Train\_acc:100.0%, Train\_loss:0.001, Test\_acc:82.5%, Test\_loss:0.957, Lr:4.00E-03

Epoch:47, Train\_acc:100.0%, Train\_loss:0.002, Test\_acc:80.8%, Test\_loss:0.975, Lr:4.00E-03

Epoch:48, Train\_acc:100.0%, Train\_loss:0.001, Test\_acc:79.4%, Test\_loss:1.112, Lr:3.68E-03

Epoch:49, Train\_acc:100.0%, Train\_loss:0.001, Test\_acc:79.4%, Test\_loss:0.978, Lr:3.68E-03

Epoch:50, Train\_acc:100.0%, Train\_loss:0.001, Test\_acc:80.6%, Test\_loss:1.008, Lr:3.68E-03

图形用户界面, 图表, 直方图

描述已自动生成

增加了图像随机颜色变化，略有提高

Epoch: 1, Train\_acc:20.6%, Train\_loss:2.338, Test\_acc:28.1%, Test\_loss:1.939, Lr:1.00E-02

Epoch: 2, Train\_acc:39.5%, Train\_loss:1.714, Test\_acc:43.9%, Test\_loss:1.545, Lr:1.00E-02

Epoch: 3, Train\_acc:54.2%, Train\_loss:1.344, Test\_acc:51.1%, Test\_loss:1.393, Lr:1.00E-02

Epoch: 4, Train\_acc:61.1%, Train\_loss:1.102, Test\_acc:57.5%, Test\_loss:1.296, Lr:9.20E-03

Epoch: 5, Train\_acc:73.3%, Train\_loss:0.825, Test\_acc:66.1%, Test\_loss:0.963, Lr:9.20E-03

Epoch: 6, Train\_acc:77.9%, Train\_loss:0.636, Test\_acc:64.4%, Test\_loss:1.107, Lr:9.20E-03

Epoch: 7, Train\_acc:85.0%, Train\_loss:0.456, Test\_acc:64.7%, Test\_loss:1.113, Lr:9.20E-03

Epoch: 8, Train\_acc:86.9%, Train\_loss:0.378, Test\_acc:70.6%, Test\_loss:0.874, Lr:8.46E-03

Epoch: 9, Train\_acc:92.2%, Train\_loss:0.245, Test\_acc:77.8%, Test\_loss:0.759, Lr:8.46E-03

Epoch:10, Train\_acc:94.0%, Train\_loss:0.180, Test\_acc:76.7%, Test\_loss:0.810, Lr:8.46E-03

Epoch:11, Train\_acc:96.0%, Train\_loss:0.134, Test\_acc:80.0%, Test\_loss:0.701, Lr:8.46E-03

Epoch:12, Train\_acc:95.5%, Train\_loss:0.142, Test\_acc:77.8%, Test\_loss:0.790, Lr:7.79E-03

Epoch:13, Train\_acc:98.1%, Train\_loss:0.063, Test\_acc:79.4%, Test\_loss:0.710, Lr:7.79E-03

Epoch:14, Train\_acc:97.7%, Train\_loss:0.066, Test\_acc:80.3%, Test\_loss:0.768, Lr:7.79E-03

Epoch:15, Train\_acc:99.0%, Train\_loss:0.045, Test\_acc:77.2%, Test\_loss:0.907, Lr:7.79E-03

Epoch:16, Train\_acc:98.5%, Train\_loss:0.057, Test\_acc:79.7%, Test\_loss:0.930, Lr:7.16E-03

Epoch:17, Train\_acc:99.4%, Train\_loss:0.020, Test\_acc:81.9%, Test\_loss:0.764, Lr:7.16E-03

Epoch:18, Train\_acc:99.1%, Train\_loss:0.023, Test\_acc:83.1%, Test\_loss:0.753, Lr:7.16E-03

Epoch:19, Train\_acc:99.0%, Train\_loss:0.032, Test\_acc:78.6%, Test\_loss:0.765, Lr:7.16E-03

Epoch:20, Train\_acc:99.2%, Train\_loss:0.023, Test\_acc:80.6%, Test\_loss:0.808, Lr:6.59E-03

Epoch:21, Train\_acc:99.7%, Train\_loss:0.015, Test\_acc:85.3%, Test\_loss:0.759, Lr:6.59E-03

Epoch:22, Train\_acc:99.7%, Train\_loss:0.011, Test\_acc:81.9%, Test\_loss:0.686, Lr:6.59E-03

Epoch:23, Train\_acc:99.6%, Train\_loss:0.013, Test\_acc:81.7%, Test\_loss:0.827, Lr:6.59E-03

Epoch:24, Train\_acc:99.5%, Train\_loss:0.015, Test\_acc:80.3%, Test\_loss:0.821, Lr:6.06E-03

Epoch:25, Train\_acc:99.7%, Train\_loss:0.008, Test\_acc:80.8%, Test\_loss:0.755, Lr:6.06E-03

Epoch:26, Train\_acc:99.8%, Train\_loss:0.008, Test\_acc:81.9%, Test\_loss:0.792, Lr:6.06E-03

Epoch:27, Train\_acc:99.9%, Train\_loss:0.004, Test\_acc:82.8%, Test\_loss:0.759, Lr:6.06E-03

Epoch:28, Train\_acc:99.7%, Train\_loss:0.012, Test\_acc:81.4%, Test\_loss:0.952, Lr:5.58E-03

Epoch:29, Train\_acc:99.9%, Train\_loss:0.004, Test\_acc:84.2%, Test\_loss:0.749, Lr:5.58E-03

Epoch:30, Train\_acc:99.9%, Train\_loss:0.006, Test\_acc:81.4%, Test\_loss:0.837, Lr:5.58E-03

Epoch:31, Train\_acc:99.9%, Train\_loss:0.003, Test\_acc:84.2%, Test\_loss:0.743, Lr:5.58E-03

Epoch:32, Train\_acc:99.5%, Train\_loss:0.019, Test\_acc:83.1%, Test\_loss:0.732, Lr:5.13E-03

Epoch:33, Train\_acc:99.9%, Train\_loss:0.006, Test\_acc:83.9%, Test\_loss:0.831, Lr:5.13E-03

Epoch:34, Train\_acc:100.0%, Train\_loss:0.003, Test\_acc:83.9%, Test\_loss:0.725, Lr:5.13E-03

Epoch:35, Train\_acc:99.8%, Train\_loss:0.003, Test\_acc:83.9%, Test\_loss:0.776, Lr:5.13E-03

Epoch:36, Train\_acc:100.0%, Train\_loss:0.002, Test\_acc:85.0%, Test\_loss:0.734, Lr:4.72E-03

Epoch:37, Train\_acc:100.0%, Train\_loss:0.002, Test\_acc:84.7%, Test\_loss:0.865, Lr:4.72E-03

Epoch:38, Train\_acc:99.8%, Train\_loss:0.003, Test\_acc:83.1%, Test\_loss:0.752, Lr:4.72E-03

Epoch:39, Train\_acc:100.0%, Train\_loss:0.003, Test\_acc:83.1%, Test\_loss:0.794, Lr:4.72E-03

Epoch:40, Train\_acc:99.7%, Train\_loss:0.005, Test\_acc:81.7%, Test\_loss:0.996, Lr:4.34E-03

Epoch:41, Train\_acc:99.2%, Train\_loss:0.026, Test\_acc:83.9%, Test\_loss:0.775, Lr:4.34E-03

Epoch:42, Train\_acc:99.7%, Train\_loss:0.007, Test\_acc:79.2%, Test\_loss:0.928, Lr:4.34E-03

Epoch:43, Train\_acc:99.7%, Train\_loss:0.009, Test\_acc:85.0%, Test\_loss:0.685, Lr:4.34E-03

Epoch:44, Train\_acc:100.0%, Train\_loss:0.002, Test\_acc:85.6%, Test\_loss:0.744, Lr:4.00E-03

Epoch:45, Train\_acc:99.9%, Train\_loss:0.004, Test\_acc:85.3%, Test\_loss:0.741, Lr:4.00E-03

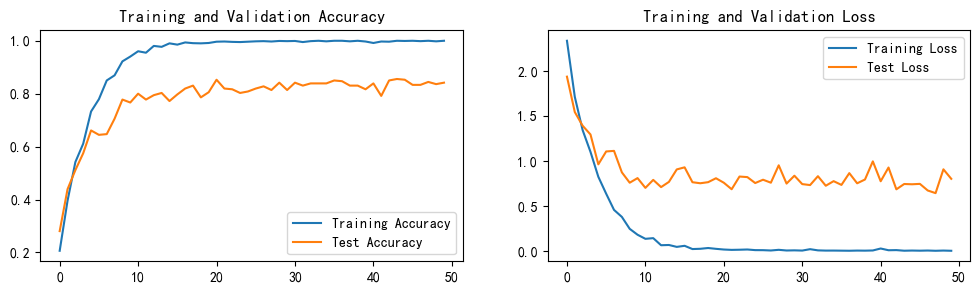
Epoch:46, Train\_acc:100.0%, Train\_loss:0.002, Test\_acc:83.3%, Test\_loss:0.746, Lr:4.00E-03

Epoch:47, Train\_acc:99.9%, Train\_loss:0.004, Test\_acc:83.3%, Test\_loss:0.672, Lr:4.00E-03

Epoch:48, Train\_acc:100.0%, Train\_loss:0.001, Test\_acc:84.4%, Test\_loss:0.643, Lr:3.68E-03

Epoch:49, Train\_acc:99.8%, Train\_loss:0.004, Test\_acc:83.6%, Test\_loss:0.908, Lr:3.68E-03

Epoch:50, Train\_acc:100.0%, Train\_loss:0.001, Test\_acc:84.2%, Test\_loss:0.802, Lr:3.68E-03



学习率调整到0.007，没有明显变化

Epoch: 1, Train\_acc:21.0%, Train\_loss:2.374, Test\_acc:30.3%, Test\_loss:1.993, Lr:7.00E-03

Epoch: 2, Train\_acc:38.2%, Train\_loss:1.782, Test\_acc:48.1%, Test\_loss:1.508, Lr:7.00E-03

Epoch: 3, Train\_acc:50.3%, Train\_loss:1.390, Test\_acc:54.7%, Test\_loss:1.268, Lr:7.00E-03

Epoch: 4, Train\_acc:62.4%, Train\_loss:1.075, Test\_acc:57.2%, Test\_loss:1.180, Lr:6.44E-03

Epoch: 5, Train\_acc:72.7%, Train\_loss:0.796, Test\_acc:62.8%, Test\_loss:1.059, Lr:6.44E-03

Epoch: 6, Train\_acc:76.8%, Train\_loss:0.653, Test\_acc:68.9%, Test\_loss:0.967, Lr:6.44E-03

Epoch: 7, Train\_acc:82.8%, Train\_loss:0.512, Test\_acc:68.1%, Test\_loss:0.977, Lr:6.44E-03

Epoch: 8, Train\_acc:87.0%, Train\_loss:0.405, Test\_acc:79.7%, Test\_loss:0.724, Lr:5.92E-03

Epoch: 9, Train\_acc:91.0%, Train\_loss:0.259, Test\_acc:72.8%, Test\_loss:0.918, Lr:5.92E-03

Epoch:10, Train\_acc:93.1%, Train\_loss:0.191, Test\_acc:76.4%, Test\_loss:0.923, Lr:5.92E-03

Epoch:11, Train\_acc:94.0%, Train\_loss:0.194, Test\_acc:81.4%, Test\_loss:0.699, Lr:5.92E-03

Epoch:12, Train\_acc:95.6%, Train\_loss:0.141, Test\_acc:81.4%, Test\_loss:0.742, Lr:5.45E-03

Epoch:13, Train\_acc:96.2%, Train\_loss:0.110, Test\_acc:78.6%, Test\_loss:0.898, Lr:5.45E-03

Epoch:14, Train\_acc:96.7%, Train\_loss:0.095, Test\_acc:78.1%, Test\_loss:0.870, Lr:5.45E-03

Epoch:15, Train\_acc:97.4%, Train\_loss:0.087, Test\_acc:78.1%, Test\_loss:0.756, Lr:5.45E-03

Epoch:16, Train\_acc:98.1%, Train\_loss:0.049, Test\_acc:80.8%, Test\_loss:0.940, Lr:5.01E-03

Epoch:17, Train\_acc:98.8%, Train\_loss:0.041, Test\_acc:78.6%, Test\_loss:1.066, Lr:5.01E-03

Epoch:18, Train\_acc:99.2%, Train\_loss:0.031, Test\_acc:78.3%, Test\_loss:1.099, Lr:5.01E-03

Epoch:19, Train\_acc:98.1%, Train\_loss:0.059, Test\_acc:79.4%, Test\_loss:0.817, Lr:5.01E-03

Epoch:20, Train\_acc:95.8%, Train\_loss:0.187, Test\_acc:79.7%, Test\_loss:0.806, Lr:4.61E-03

Epoch:21, Train\_acc:99.4%, Train\_loss:0.030, Test\_acc:78.1%, Test\_loss:0.890, Lr:4.61E-03

Epoch:22, Train\_acc:99.3%, Train\_loss:0.028, Test\_acc:82.2%, Test\_loss:0.772, Lr:4.61E-03

Epoch:23, Train\_acc:99.4%, Train\_loss:0.019, Test\_acc:80.3%, Test\_loss:0.926, Lr:4.61E-03

Epoch:24, Train\_acc:99.5%, Train\_loss:0.016, Test\_acc:81.7%, Test\_loss:0.988, Lr:4.24E-03

Epoch:25, Train\_acc:99.9%, Train\_loss:0.011, Test\_acc:81.9%, Test\_loss:0.883, Lr:4.24E-03

Epoch:26, Train\_acc:99.4%, Train\_loss:0.021, Test\_acc:83.1%, Test\_loss:0.907, Lr:4.24E-03

Epoch:27, Train\_acc:99.9%, Train\_loss:0.008, Test\_acc:81.1%, Test\_loss:0.846, Lr:4.24E-03

Epoch:28, Train\_acc:99.4%, Train\_loss:0.016, Test\_acc:81.9%, Test\_loss:0.933, Lr:3.90E-03

Epoch:29, Train\_acc:99.6%, Train\_loss:0.012, Test\_acc:82.8%, Test\_loss:0.914, Lr:3.90E-03

Epoch:30, Train\_acc:99.9%, Train\_loss:0.005, Test\_acc:85.0%, Test\_loss:0.897, Lr:3.90E-03

Epoch:31, Train\_acc:100.0%, Train\_loss:0.005, Test\_acc:85.8%, Test\_loss:0.844, Lr:3.90E-03

Epoch:32, Train\_acc:100.0%, Train\_loss:0.003, Test\_acc:83.1%, Test\_loss:0.895, Lr:3.59E-03

Epoch:33, Train\_acc:99.4%, Train\_loss:0.013, Test\_acc:83.6%, Test\_loss:0.918, Lr:3.59E-03

Epoch:34, Train\_acc:99.9%, Train\_loss:0.006, Test\_acc:84.2%, Test\_loss:1.079, Lr:3.59E-03

Epoch:35, Train\_acc:100.0%, Train\_loss:0.004, Test\_acc:82.8%, Test\_loss:1.030, Lr:3.59E-03

Epoch:36, Train\_acc:99.9%, Train\_loss:0.007, Test\_acc:83.6%, Test\_loss:1.009, Lr:3.31E-03

Epoch:37, Train\_acc:99.7%, Train\_loss:0.008, Test\_acc:83.3%, Test\_loss:0.842, Lr:3.31E-03

Epoch:38, Train\_acc:99.9%, Train\_loss:0.005, Test\_acc:83.9%, Test\_loss:0.955, Lr:3.31E-03

Epoch:39, Train\_acc:99.8%, Train\_loss:0.005, Test\_acc:82.5%, Test\_loss:1.004, Lr:3.31E-03

Epoch:40, Train\_acc:99.7%, Train\_loss:0.007, Test\_acc:84.2%, Test\_loss:1.064, Lr:3.04E-03

Epoch:41, Train\_acc:99.5%, Train\_loss:0.019, Test\_acc:82.8%, Test\_loss:0.907, Lr:3.04E-03

Epoch:42, Train\_acc:99.9%, Train\_loss:0.005, Test\_acc:83.6%, Test\_loss:0.800, Lr:3.04E-03

Epoch:43, Train\_acc:99.9%, Train\_loss:0.004, Test\_acc:83.9%, Test\_loss:0.824, Lr:3.04E-03

Epoch:44, Train\_acc:99.9%, Train\_loss:0.004, Test\_acc:82.5%, Test\_loss:0.931, Lr:2.80E-03

Epoch:45, Train\_acc:99.9%, Train\_loss:0.005, Test\_acc:83.6%, Test\_loss:0.939, Lr:2.80E-03

Epoch:46, Train\_acc:99.8%, Train\_loss:0.005, Test\_acc:83.1%, Test\_loss:0.923, Lr:2.80E-03

Epoch:47, Train\_acc:99.9%, Train\_loss:0.003, Test\_acc:83.3%, Test\_loss:0.946, Lr:2.80E-03

Epoch:48, Train\_acc:100.0%, Train\_loss:0.002, Test\_acc:86.1%, Test\_loss:1.015, Lr:2.57E-03

Epoch:49, Train\_acc:99.9%, Train\_loss:0.004, Test\_acc:85.0%, Test\_loss:0.906, Lr:2.57E-03

Epoch:50, Train\_acc:100.0%, Train\_loss:0.001, Test\_acc:84.7%, Test\_loss:0.987, Lr:2.57E-03

图表, 直方图

描述已自动生成

学习率0.0085，好像好了一点点

Epoch: 1, Train\_acc:20.4%, Train\_loss:2.353, Test\_acc:35.8%, Test\_loss:1.914, Lr:8.50E-03

Epoch: 2, Train\_acc:39.9%, Train\_loss:1.729, Test\_acc:37.8%, Test\_loss:1.837, Lr:8.50E-03

Epoch: 3, Train\_acc:52.3%, Train\_loss:1.378, Test\_acc:50.6%, Test\_loss:1.373, Lr:8.50E-03

Epoch: 4, Train\_acc:60.3%, Train\_loss:1.113, Test\_acc:37.5%, Test\_loss:1.902, Lr:7.82E-03

Epoch: 5, Train\_acc:68.5%, Train\_loss:0.876, Test\_acc:67.2%, Test\_loss:0.963, Lr:7.82E-03

Epoch: 6, Train\_acc:75.0%, Train\_loss:0.738, Test\_acc:68.9%, Test\_loss:0.948, Lr:7.82E-03

Epoch: 7, Train\_acc:81.4%, Train\_loss:0.548, Test\_acc:66.9%, Test\_loss:1.039, Lr:7.82E-03

Epoch: 8, Train\_acc:86.2%, Train\_loss:0.394, Test\_acc:71.1%, Test\_loss:0.986, Lr:7.19E-03

Epoch: 9, Train\_acc:92.0%, Train\_loss:0.246, Test\_acc:68.9%, Test\_loss:0.987, Lr:7.19E-03

Epoch:10, Train\_acc:93.3%, Train\_loss:0.201, Test\_acc:79.2%, Test\_loss:0.759, Lr:7.19E-03

Epoch:11, Train\_acc:95.2%, Train\_loss:0.157, Test\_acc:79.7%, Test\_loss:0.730, Lr:7.19E-03

Epoch:12, Train\_acc:95.0%, Train\_loss:0.151, Test\_acc:76.1%, Test\_loss:1.016, Lr:6.62E-03

Epoch:13, Train\_acc:96.7%, Train\_loss:0.099, Test\_acc:81.1%, Test\_loss:0.691, Lr:6.62E-03

Epoch:14, Train\_acc:96.5%, Train\_loss:0.105, Test\_acc:78.9%, Test\_loss:0.838, Lr:6.62E-03

Epoch:15, Train\_acc:98.3%, Train\_loss:0.048, Test\_acc:83.9%, Test\_loss:0.692, Lr:6.62E-03

Epoch:16, Train\_acc:98.7%, Train\_loss:0.043, Test\_acc:79.7%, Test\_loss:0.806, Lr:6.09E-03

Epoch:17, Train\_acc:99.3%, Train\_loss:0.023, Test\_acc:80.0%, Test\_loss:0.964, Lr:6.09E-03

Epoch:18, Train\_acc:99.4%, Train\_loss:0.030, Test\_acc:82.8%, Test\_loss:0.848, Lr:6.09E-03

Epoch:19, Train\_acc:98.5%, Train\_loss:0.043, Test\_acc:83.6%, Test\_loss:0.856, Lr:6.09E-03

Epoch:20, Train\_acc:99.2%, Train\_loss:0.027, Test\_acc:81.1%, Test\_loss:0.768, Lr:5.60E-03

Epoch:21, Train\_acc:99.7%, Train\_loss:0.014, Test\_acc:81.7%, Test\_loss:0.827, Lr:5.60E-03

Epoch:22, Train\_acc:99.4%, Train\_loss:0.016, Test\_acc:83.1%, Test\_loss:0.748, Lr:5.60E-03

Epoch:23, Train\_acc:99.6%, Train\_loss:0.010, Test\_acc:81.7%, Test\_loss:0.959, Lr:5.60E-03

Epoch:24, Train\_acc:99.8%, Train\_loss:0.007, Test\_acc:80.8%, Test\_loss:0.804, Lr:5.15E-03

Epoch:25, Train\_acc:99.8%, Train\_loss:0.009, Test\_acc:83.1%, Test\_loss:0.848, Lr:5.15E-03

Epoch:26, Train\_acc:99.9%, Train\_loss:0.008, Test\_acc:83.9%, Test\_loss:0.753, Lr:5.15E-03

Epoch:27, Train\_acc:99.7%, Train\_loss:0.010, Test\_acc:83.1%, Test\_loss:0.754, Lr:5.15E-03

Epoch:28, Train\_acc:99.3%, Train\_loss:0.019, Test\_acc:81.4%, Test\_loss:0.837, Lr:4.74E-03

Epoch:29, Train\_acc:99.8%, Train\_loss:0.012, Test\_acc:82.5%, Test\_loss:0.818, Lr:4.74E-03

Epoch:30, Train\_acc:100.0%, Train\_loss:0.005, Test\_acc:85.3%, Test\_loss:0.758, Lr:4.74E-03

Epoch:31, Train\_acc:99.9%, Train\_loss:0.008, Test\_acc:83.6%, Test\_loss:0.777, Lr:4.74E-03

Epoch:32, Train\_acc:99.0%, Train\_loss:0.026, Test\_acc:81.4%, Test\_loss:0.939, Lr:4.36E-03

Epoch:33, Train\_acc:99.9%, Train\_loss:0.007, Test\_acc:83.3%, Test\_loss:0.828, Lr:4.36E-03

Epoch:34, Train\_acc:99.7%, Train\_loss:0.010, Test\_acc:81.7%, Test\_loss:0.849, Lr:4.36E-03

Epoch:35, Train\_acc:99.9%, Train\_loss:0.005, Test\_acc:83.3%, Test\_loss:0.789, Lr:4.36E-03

Epoch:36, Train\_acc:99.4%, Train\_loss:0.028, Test\_acc:78.6%, Test\_loss:0.897, Lr:4.01E-03

Epoch:37, Train\_acc:99.7%, Train\_loss:0.014, Test\_acc:82.5%, Test\_loss:0.911, Lr:4.01E-03

Epoch:38, Train\_acc:99.9%, Train\_loss:0.004, Test\_acc:82.8%, Test\_loss:0.812, Lr:4.01E-03

Epoch:39, Train\_acc:100.0%, Train\_loss:0.004, Test\_acc:83.3%, Test\_loss:0.933, Lr:4.01E-03

Epoch:40, Train\_acc:100.0%, Train\_loss:0.002, Test\_acc:84.4%, Test\_loss:0.784, Lr:3.69E-03

Epoch:41, Train\_acc:99.9%, Train\_loss:0.004, Test\_acc:83.3%, Test\_loss:0.803, Lr:3.69E-03

Epoch:42, Train\_acc:99.9%, Train\_loss:0.004, Test\_acc:83.3%, Test\_loss:0.853, Lr:3.69E-03

Epoch:43, Train\_acc:100.0%, Train\_loss:0.002, Test\_acc:83.1%, Test\_loss:0.835, Lr:3.69E-03

Epoch:44, Train\_acc:100.0%, Train\_loss:0.002, Test\_acc:85.0%, Test\_loss:0.715, Lr:3.40E-03

Epoch:45, Train\_acc:99.9%, Train\_loss:0.002, Test\_acc:85.8%, Test\_loss:0.797, Lr:3.40E-03

Epoch:46, Train\_acc:99.7%, Train\_loss:0.007, Test\_acc:83.3%, Test\_loss:0.968, Lr:3.40E-03

Epoch:47, Train\_acc:100.0%, Train\_loss:0.002, Test\_acc:84.4%, Test\_loss:0.956, Lr:3.40E-03

Epoch:48, Train\_acc:99.9%, Train\_loss:0.003, Test\_acc:83.1%, Test\_loss:0.916, Lr:3.13E-03

Epoch:49, Train\_acc:99.9%, Train\_loss:0.004, Test\_acc:83.9%, Test\_loss:0.809, Lr:3.13E-03

Epoch:50, Train\_acc:99.9%, Train\_loss:0.003, Test\_acc:85.8%, Test\_loss:0.733, Lr:3.13E-03

图表, 直方图

描述已自动生成

把学习率下降速度调快了一点，0.92三轮一降，感觉性能下降了。

Epoch: 1, Train\_acc:19.6%, Train\_loss:2.392, Test\_acc:29.4%, Test\_loss:1.951, Lr:8.50E-03

Epoch: 2, Train\_acc:36.9%, Train\_loss:1.740, Test\_acc:44.4%, Test\_loss:1.506, Lr:8.50E-03

Epoch: 3, Train\_acc:48.3%, Train\_loss:1.441, Test\_acc:53.1%, Test\_loss:1.331, Lr:7.82E-03

Epoch: 4, Train\_acc:61.5%, Train\_loss:1.086, Test\_acc:60.6%, Test\_loss:1.095, Lr:7.82E-03

Epoch: 5, Train\_acc:70.3%, Train\_loss:0.846, Test\_acc:67.5%, Test\_loss:0.936, Lr:7.82E-03

Epoch: 6, Train\_acc:75.7%, Train\_loss:0.699, Test\_acc:65.6%, Test\_loss:1.099, Lr:7.19E-03

Epoch: 7, Train\_acc:83.5%, Train\_loss:0.499, Test\_acc:73.1%, Test\_loss:0.829, Lr:7.19E-03

Epoch: 8, Train\_acc:87.2%, Train\_loss:0.371, Test\_acc:68.6%, Test\_loss:0.994, Lr:7.19E-03

Epoch: 9, Train\_acc:90.4%, Train\_loss:0.277, Test\_acc:74.7%, Test\_loss:0.845, Lr:6.62E-03

Epoch:10, Train\_acc:94.9%, Train\_loss:0.182, Test\_acc:73.9%, Test\_loss:0.895, Lr:6.62E-03

Epoch:11, Train\_acc:94.5%, Train\_loss:0.164, Test\_acc:78.1%, Test\_loss:0.717, Lr:6.62E-03

Epoch:12, Train\_acc:96.7%, Train\_loss:0.104, Test\_acc:76.1%, Test\_loss:0.883, Lr:6.09E-03

Epoch:13, Train\_acc:97.5%, Train\_loss:0.076, Test\_acc:80.0%, Test\_loss:0.826, Lr:6.09E-03

Epoch:14, Train\_acc:97.6%, Train\_loss:0.076, Test\_acc:77.2%, Test\_loss:0.862, Lr:6.09E-03

Epoch:15, Train\_acc:98.6%, Train\_loss:0.043, Test\_acc:79.4%, Test\_loss:0.833, Lr:5.60E-03

Epoch:16, Train\_acc:98.3%, Train\_loss:0.054, Test\_acc:80.6%, Test\_loss:0.995, Lr:5.60E-03

Epoch:17, Train\_acc:98.3%, Train\_loss:0.047, Test\_acc:81.4%, Test\_loss:0.973, Lr:5.60E-03

Epoch:18, Train\_acc:99.2%, Train\_loss:0.026, Test\_acc:78.3%, Test\_loss:0.955, Lr:5.15E-03

Epoch:19, Train\_acc:99.4%, Train\_loss:0.020, Test\_acc:79.7%, Test\_loss:0.994, Lr:5.15E-03

Epoch:20, Train\_acc:99.0%, Train\_loss:0.030, Test\_acc:81.4%, Test\_loss:0.794, Lr:5.15E-03

Epoch:21, Train\_acc:99.5%, Train\_loss:0.016, Test\_acc:81.4%, Test\_loss:0.953, Lr:4.74E-03

Epoch:22, Train\_acc:99.7%, Train\_loss:0.012, Test\_acc:80.8%, Test\_loss:0.913, Lr:4.74E-03

Epoch:23, Train\_acc:99.7%, Train\_loss:0.009, Test\_acc:79.7%, Test\_loss:1.070, Lr:4.74E-03

Epoch:24, Train\_acc:99.3%, Train\_loss:0.025, Test\_acc:81.4%, Test\_loss:0.936, Lr:4.36E-03

Epoch:25, Train\_acc:99.6%, Train\_loss:0.011, Test\_acc:83.1%, Test\_loss:1.158, Lr:4.36E-03

Epoch:26, Train\_acc:99.5%, Train\_loss:0.015, Test\_acc:83.6%, Test\_loss:0.939, Lr:4.36E-03

Epoch:27, Train\_acc:99.8%, Train\_loss:0.009, Test\_acc:80.8%, Test\_loss:0.982, Lr:4.01E-03

Epoch:28, Train\_acc:99.9%, Train\_loss:0.008, Test\_acc:81.9%, Test\_loss:0.901, Lr:4.01E-03

Epoch:29, Train\_acc:99.8%, Train\_loss:0.006, Test\_acc:83.3%, Test\_loss:1.013, Lr:4.01E-03

Epoch:30, Train\_acc:99.4%, Train\_loss:0.018, Test\_acc:80.6%, Test\_loss:0.954, Lr:3.69E-03

Epoch:31, Train\_acc:99.5%, Train\_loss:0.014, Test\_acc:80.0%, Test\_loss:0.943, Lr:3.69E-03

Epoch:32, Train\_acc:99.9%, Train\_loss:0.004, Test\_acc:80.3%, Test\_loss:1.013, Lr:3.69E-03

Epoch:33, Train\_acc:99.8%, Train\_loss:0.009, Test\_acc:82.5%, Test\_loss:0.904, Lr:3.40E-03

Epoch:34, Train\_acc:99.9%, Train\_loss:0.004, Test\_acc:82.5%, Test\_loss:0.954, Lr:3.40E-03

Epoch:35, Train\_acc:99.7%, Train\_loss:0.010, Test\_acc:82.2%, Test\_loss:0.953, Lr:3.40E-03

Epoch:36, Train\_acc:100.0%, Train\_loss:0.003, Test\_acc:84.2%, Test\_loss:0.939, Lr:3.13E-03

Epoch:37, Train\_acc:99.9%, Train\_loss:0.003, Test\_acc:83.3%, Test\_loss:0.922, Lr:3.13E-03

Epoch:38, Train\_acc:99.9%, Train\_loss:0.003, Test\_acc:84.4%, Test\_loss:1.011, Lr:3.13E-03

Epoch:39, Train\_acc:100.0%, Train\_loss:0.004, Test\_acc:83.1%, Test\_loss:1.030, Lr:2.88E-03

Epoch:40, Train\_acc:99.8%, Train\_loss:0.004, Test\_acc:81.9%, Test\_loss:1.165, Lr:2.88E-03

Epoch:41, Train\_acc:100.0%, Train\_loss:0.001, Test\_acc:81.4%, Test\_loss:1.132, Lr:2.88E-03

Epoch:42, Train\_acc:99.9%, Train\_loss:0.005, Test\_acc:83.3%, Test\_loss:0.933, Lr:2.65E-03

Epoch:43, Train\_acc:99.9%, Train\_loss:0.006, Test\_acc:80.8%, Test\_loss:0.960, Lr:2.65E-03

Epoch:44, Train\_acc:100.0%, Train\_loss:0.002, Test\_acc:80.0%, Test\_loss:0.986, Lr:2.65E-03

Epoch:45, Train\_acc:99.9%, Train\_loss:0.005, Test\_acc:81.9%, Test\_loss:0.933, Lr:2.43E-03

Epoch:46, Train\_acc:99.9%, Train\_loss:0.005, Test\_acc:82.5%, Test\_loss:1.161, Lr:2.43E-03

Epoch:47, Train\_acc:99.9%, Train\_loss:0.004, Test\_acc:82.2%, Test\_loss:0.977, Lr:2.43E-03

Epoch:48, Train\_acc:99.9%, Train\_loss:0.004, Test\_acc:83.3%, Test\_loss:0.955, Lr:2.24E-03

Epoch:49, Train\_acc:100.0%, Train\_loss:0.003, Test\_acc:82.2%, Test\_loss:0.983, Lr:2.24E-03

Epoch:50, Train\_acc:99.9%, Train\_loss:0.002, Test\_acc:79.7%, Test\_loss:0.956, Lr:2.24E-03

Ave acc: 77.23333333333332 Best: 84.44444444444444 Time: 630.6058962345123

图表, 直方图

描述已自动生成

下降率调慢了一点，感觉最后更稳定一些了

Epoch: 1, Train\_acc:21.9%, Train\_loss:2.345, Test\_acc:33.1%, Test\_loss:1.928, Lr:8.50E-03

Epoch: 2, Train\_acc:39.0%, Train\_loss:1.733, Test\_acc:51.4%, Test\_loss:1.451, Lr:8.50E-03

Epoch: 3, Train\_acc:54.1%, Train\_loss:1.346, Test\_acc:56.4%, Test\_loss:1.229, Lr:8.50E-03

Epoch: 4, Train\_acc:62.1%, Train\_loss:1.115, Test\_acc:61.7%, Test\_loss:1.127, Lr:8.08E-03

Epoch: 5, Train\_acc:71.8%, Train\_loss:0.843, Test\_acc:65.0%, Test\_loss:1.016, Lr:8.08E-03

Epoch: 6, Train\_acc:78.5%, Train\_loss:0.645, Test\_acc:65.6%, Test\_loss:0.953, Lr:8.08E-03

Epoch: 7, Train\_acc:82.6%, Train\_loss:0.528, Test\_acc:67.2%, Test\_loss:1.111, Lr:8.08E-03

Epoch: 8, Train\_acc:86.9%, Train\_loss:0.400, Test\_acc:75.6%, Test\_loss:0.900, Lr:7.67E-03

Epoch: 9, Train\_acc:89.9%, Train\_loss:0.291, Test\_acc:76.1%, Test\_loss:0.863, Lr:7.67E-03

Epoch:10, Train\_acc:94.0%, Train\_loss:0.176, Test\_acc:76.4%, Test\_loss:0.821, Lr:7.67E-03

Epoch:11, Train\_acc:92.3%, Train\_loss:0.285, Test\_acc:77.5%, Test\_loss:0.878, Lr:7.67E-03

Epoch:12, Train\_acc:91.9%, Train\_loss:0.234, Test\_acc:77.8%, Test\_loss:0.897, Lr:7.29E-03

Epoch:13, Train\_acc:97.9%, Train\_loss:0.079, Test\_acc:78.1%, Test\_loss:0.967, Lr:7.29E-03

Epoch:14, Train\_acc:97.5%, Train\_loss:0.079, Test\_acc:76.7%, Test\_loss:1.020, Lr:7.29E-03

Epoch:15, Train\_acc:98.3%, Train\_loss:0.051, Test\_acc:79.4%, Test\_loss:0.862, Lr:7.29E-03

Epoch:16, Train\_acc:94.8%, Train\_loss:0.221, Test\_acc:78.1%, Test\_loss:0.854, Lr:6.92E-03

Epoch:17, Train\_acc:99.1%, Train\_loss:0.042, Test\_acc:79.2%, Test\_loss:0.837, Lr:6.92E-03

Epoch:18, Train\_acc:99.4%, Train\_loss:0.024, Test\_acc:80.6%, Test\_loss:0.869, Lr:6.92E-03

Epoch:19, Train\_acc:99.3%, Train\_loss:0.019, Test\_acc:80.0%, Test\_loss:0.991, Lr:6.92E-03

Epoch:20, Train\_acc:99.2%, Train\_loss:0.029, Test\_acc:81.4%, Test\_loss:0.816, Lr:6.58E-03

Epoch:21, Train\_acc:99.3%, Train\_loss:0.032, Test\_acc:81.7%, Test\_loss:0.897, Lr:6.58E-03

Epoch:22, Train\_acc:99.6%, Train\_loss:0.016, Test\_acc:84.2%, Test\_loss:0.757, Lr:6.58E-03

Epoch:23, Train\_acc:99.8%, Train\_loss:0.009, Test\_acc:80.6%, Test\_loss:1.112, Lr:6.58E-03

Epoch:24, Train\_acc:99.3%, Train\_loss:0.024, Test\_acc:81.7%, Test\_loss:0.910, Lr:6.25E-03

Epoch:25, Train\_acc:99.5%, Train\_loss:0.017, Test\_acc:84.2%, Test\_loss:0.855, Lr:6.25E-03

Epoch:26, Train\_acc:99.9%, Train\_loss:0.007, Test\_acc:81.1%, Test\_loss:1.005, Lr:6.25E-03

Epoch:27, Train\_acc:99.7%, Train\_loss:0.013, Test\_acc:81.1%, Test\_loss:0.938, Lr:6.25E-03

Epoch:28, Train\_acc:99.4%, Train\_loss:0.018, Test\_acc:79.4%, Test\_loss:0.873, Lr:5.94E-03

Epoch:29, Train\_acc:99.5%, Train\_loss:0.020, Test\_acc:82.5%, Test\_loss:0.844, Lr:5.94E-03

Epoch:30, Train\_acc:99.5%, Train\_loss:0.013, Test\_acc:82.8%, Test\_loss:0.813, Lr:5.94E-03

Epoch:31, Train\_acc:100.0%, Train\_loss:0.003, Test\_acc:83.9%, Test\_loss:0.882, Lr:5.94E-03

Epoch:32, Train\_acc:99.9%, Train\_loss:0.005, Test\_acc:83.3%, Test\_loss:0.855, Lr:5.64E-03

Epoch:33, Train\_acc:99.8%, Train\_loss:0.005, Test\_acc:83.3%, Test\_loss:1.077, Lr:5.64E-03

Epoch:34, Train\_acc:99.8%, Train\_loss:0.008, Test\_acc:83.3%, Test\_loss:0.958, Lr:5.64E-03

Epoch:35, Train\_acc:99.9%, Train\_loss:0.006, Test\_acc:83.1%, Test\_loss:0.868, Lr:5.64E-03

Epoch:36, Train\_acc:99.9%, Train\_loss:0.004, Test\_acc:82.5%, Test\_loss:0.899, Lr:5.36E-03

Epoch:37, Train\_acc:99.9%, Train\_loss:0.003, Test\_acc:83.1%, Test\_loss:1.025, Lr:5.36E-03

Epoch:38, Train\_acc:99.8%, Train\_loss:0.005, Test\_acc:82.2%, Test\_loss:0.969, Lr:5.36E-03

Epoch:39, Train\_acc:99.9%, Train\_loss:0.002, Test\_acc:84.2%, Test\_loss:0.952, Lr:5.36E-03

Epoch:40, Train\_acc:99.9%, Train\_loss:0.004, Test\_acc:83.6%, Test\_loss:0.953, Lr:5.09E-03

Epoch:41, Train\_acc:99.9%, Train\_loss:0.004, Test\_acc:83.9%, Test\_loss:1.187, Lr:5.09E-03

Epoch:42, Train\_acc:99.9%, Train\_loss:0.003, Test\_acc:83.6%, Test\_loss:1.226, Lr:5.09E-03

Epoch:43, Train\_acc:100.0%, Train\_loss:0.001, Test\_acc:82.2%, Test\_loss:1.035, Lr:5.09E-03

Epoch:44, Train\_acc:99.9%, Train\_loss:0.003, Test\_acc:82.8%, Test\_loss:1.136, Lr:4.83E-03

Epoch:45, Train\_acc:99.6%, Train\_loss:0.011, Test\_acc:83.6%, Test\_loss:1.087, Lr:4.83E-03

Epoch:46, Train\_acc:99.8%, Train\_loss:0.006, Test\_acc:84.2%, Test\_loss:1.071, Lr:4.83E-03

Epoch:47, Train\_acc:100.0%, Train\_loss:0.002, Test\_acc:83.9%, Test\_loss:0.911, Lr:4.83E-03

Epoch:48, Train\_acc:99.9%, Train\_loss:0.003, Test\_acc:82.8%, Test\_loss:1.120, Lr:4.59E-03

Epoch:49, Train\_acc:100.0%, Train\_loss:0.002, Test\_acc:83.9%, Test\_loss:0.982, Lr:4.59E-03

Epoch:50, Train\_acc:99.9%, Train\_loss:0.004, Test\_acc:81.7%, Test\_loss:0.964, Lr:4.59E-03

Ave acc: 78.0222222222222 Best: 84.16666666666667 Time: 631.9299337863922

图表, 折线图, 直方图

描述已自动生成

增加图像随机左右摇摆5度，没变化

Epoch: 1, Train\_acc:18.8%, Train\_loss:2.423, Test\_acc:30.3%, Test\_loss:1.975, Lr:8.50E-03

Epoch: 2, Train\_acc:36.2%, Train\_loss:1.821, Test\_acc:47.8%, Test\_loss:1.503, Lr:8.50E-03

Epoch: 3, Train\_acc:50.5%, Train\_loss:1.394, Test\_acc:55.8%, Test\_loss:1.272, Lr:8.50E-03

Epoch: 4, Train\_acc:57.4%, Train\_loss:1.219, Test\_acc:47.5%, Test\_loss:1.468, Lr:8.08E-03

Epoch: 5, Train\_acc:66.6%, Train\_loss:0.934, Test\_acc:63.1%, Test\_loss:1.156, Lr:8.08E-03

Epoch: 6, Train\_acc:73.1%, Train\_loss:0.763, Test\_acc:71.4%, Test\_loss:0.926, Lr:8.08E-03

Epoch: 7, Train\_acc:75.6%, Train\_loss:0.710, Test\_acc:70.3%, Test\_loss:0.814, Lr:8.08E-03

Epoch: 8, Train\_acc:82.6%, Train\_loss:0.512, Test\_acc:60.0%, Test\_loss:1.178, Lr:7.67E-03

Epoch: 9, Train\_acc:85.4%, Train\_loss:0.439, Test\_acc:70.3%, Test\_loss:0.895, Lr:7.67E-03

Epoch:10, Train\_acc:90.0%, Train\_loss:0.318, Test\_acc:75.8%, Test\_loss:0.761, Lr:7.67E-03

Epoch:11, Train\_acc:92.6%, Train\_loss:0.235, Test\_acc:69.7%, Test\_loss:1.119, Lr:7.67E-03

Epoch:12, Train\_acc:93.8%, Train\_loss:0.190, Test\_acc:77.8%, Test\_loss:0.705, Lr:7.29E-03

Epoch:13, Train\_acc:94.8%, Train\_loss:0.165, Test\_acc:79.7%, Test\_loss:0.676, Lr:7.29E-03

Epoch:14, Train\_acc:95.0%, Train\_loss:0.160, Test\_acc:77.2%, Test\_loss:0.798, Lr:7.29E-03

Epoch:15, Train\_acc:96.9%, Train\_loss:0.103, Test\_acc:76.4%, Test\_loss:0.809, Lr:7.29E-03

Epoch:16, Train\_acc:95.7%, Train\_loss:0.147, Test\_acc:77.8%, Test\_loss:0.780, Lr:6.92E-03

Epoch:17, Train\_acc:98.1%, Train\_loss:0.056, Test\_acc:76.7%, Test\_loss:0.789, Lr:6.92E-03

Epoch:18, Train\_acc:98.7%, Train\_loss:0.048, Test\_acc:79.4%, Test\_loss:0.747, Lr:6.92E-03

Epoch:19, Train\_acc:97.8%, Train\_loss:0.070, Test\_acc:78.1%, Test\_loss:0.823, Lr:6.92E-03

Epoch:20, Train\_acc:98.1%, Train\_loss:0.057, Test\_acc:78.9%, Test\_loss:0.793, Lr:6.58E-03

Epoch:21, Train\_acc:99.6%, Train\_loss:0.020, Test\_acc:81.9%, Test\_loss:0.686, Lr:6.58E-03

Epoch:22, Train\_acc:96.8%, Train\_loss:0.109, Test\_acc:80.0%, Test\_loss:0.716, Lr:6.58E-03

Epoch:23, Train\_acc:99.4%, Train\_loss:0.024, Test\_acc:81.1%, Test\_loss:0.723, Lr:6.58E-03

Epoch:24, Train\_acc:99.1%, Train\_loss:0.028, Test\_acc:82.8%, Test\_loss:0.651, Lr:6.25E-03

Epoch:25, Train\_acc:99.4%, Train\_loss:0.017, Test\_acc:80.3%, Test\_loss:0.806, Lr:6.25E-03

Epoch:26, Train\_acc:99.2%, Train\_loss:0.029, Test\_acc:79.7%, Test\_loss:0.795, Lr:6.25E-03

Epoch:27, Train\_acc:99.7%, Train\_loss:0.013, Test\_acc:82.5%, Test\_loss:0.863, Lr:6.25E-03

Epoch:28, Train\_acc:99.5%, Train\_loss:0.019, Test\_acc:80.0%, Test\_loss:0.834, Lr:5.94E-03

Epoch:29, Train\_acc:99.7%, Train\_loss:0.013, Test\_acc:81.7%, Test\_loss:0.665, Lr:5.94E-03

Epoch:30, Train\_acc:99.5%, Train\_loss:0.012, Test\_acc:80.3%, Test\_loss:0.819, Lr:5.94E-03

Epoch:31, Train\_acc:99.9%, Train\_loss:0.009, Test\_acc:81.4%, Test\_loss:0.906, Lr:5.94E-03

Epoch:32, Train\_acc:99.7%, Train\_loss:0.010, Test\_acc:81.4%, Test\_loss:0.834, Lr:5.64E-03

Epoch:33, Train\_acc:99.2%, Train\_loss:0.039, Test\_acc:79.7%, Test\_loss:0.832, Lr:5.64E-03

Epoch:34, Train\_acc:99.7%, Train\_loss:0.013, Test\_acc:79.4%, Test\_loss:0.764, Lr:5.64E-03

Epoch:35, Train\_acc:99.7%, Train\_loss:0.009, Test\_acc:80.3%, Test\_loss:0.739, Lr:5.64E-03

Epoch:36, Train\_acc:99.8%, Train\_loss:0.007, Test\_acc:82.5%, Test\_loss:0.779, Lr:5.36E-03

Epoch:37, Train\_acc:100.0%, Train\_loss:0.004, Test\_acc:82.8%, Test\_loss:0.764, Lr:5.36E-03

Epoch:38, Train\_acc:99.6%, Train\_loss:0.020, Test\_acc:82.5%, Test\_loss:0.775, Lr:5.36E-03

Epoch:39, Train\_acc:99.9%, Train\_loss:0.005, Test\_acc:81.1%, Test\_loss:0.884, Lr:5.36E-03

Epoch:40, Train\_acc:99.0%, Train\_loss:0.049, Test\_acc:81.9%, Test\_loss:0.696, Lr:5.09E-03

Epoch:41, Train\_acc:99.9%, Train\_loss:0.006, Test\_acc:81.9%, Test\_loss:0.681, Lr:5.09E-03

Epoch:42, Train\_acc:99.9%, Train\_loss:0.004, Test\_acc:81.4%, Test\_loss:0.786, Lr:5.09E-03

Epoch:43, Train\_acc:100.0%, Train\_loss:0.002, Test\_acc:84.4%, Test\_loss:0.730, Lr:5.09E-03

Epoch:44, Train\_acc:99.6%, Train\_loss:0.010, Test\_acc:80.0%, Test\_loss:0.752, Lr:4.83E-03

Epoch:45, Train\_acc:99.7%, Train\_loss:0.013, Test\_acc:81.1%, Test\_loss:0.772, Lr:4.83E-03

Epoch:46, Train\_acc:99.9%, Train\_loss:0.004, Test\_acc:82.2%, Test\_loss:0.791, Lr:4.83E-03

Epoch:47, Train\_acc:99.9%, Train\_loss:0.008, Test\_acc:81.7%, Test\_loss:0.814, Lr:4.83E-03

Epoch:48, Train\_acc:99.7%, Train\_loss:0.012, Test\_acc:82.8%, Test\_loss:0.753, Lr:4.59E-03

Epoch:49, Train\_acc:99.7%, Train\_loss:0.006, Test\_acc:78.3%, Test\_loss:1.024, Lr:4.59E-03

Epoch:50, Train\_acc:99.9%, Train\_loss:0.007, Test\_acc:81.7%, Test\_loss:0.837, Lr:4.59E-03

Ave acc: 76.05555555555554 Best: 84.44444444444444 Time: 638.3379383087158

图表, 直方图

描述已自动生成