**作业4 – RNN+CRF序列标注练习**

**命名实体（中文人名、地名、组织机构名）识别**

**任务：**用序列标注方法将文本中的人名、地名和组织机构名识别出来。

**模型参数：BILSTM+CRF**

词向量维数：300

隐藏层维数：512

优化器：resprop

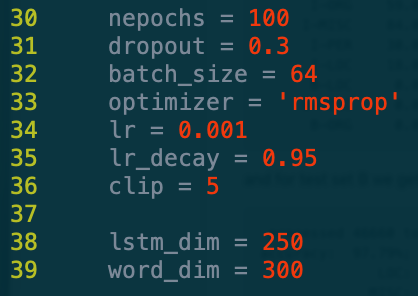
初始学习率：0.001

学习率衰减因子：0.95

batch\_size：64

dropout：0.3

clip：5



**测试结果：**

第67轮结果

{'acc': 98.38905775075987, 'f1': 91.14850036576446, 'p': 93.4032983508246, 'r': 89.0, 'f1\_per': 97.0, 'p\_per': 97.48743718592965, 'r\_per': 96.517412 93532339, 'f1\_loc': 90.94076655052264, 'p\_loc': 92.5531914893617, 'r\_loc': 89.38356164383562, 'f1\_org': 85.49618320610686, 'p\_org': 90.3225806451612 8, 'r\_org': 81.15942028985508}

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| --- | --- | --- | --- |
| **Accuracy** | **F1-Measure** | **Precision** | **Recall** |
| 98.39 | 91.15 | 93.40 | 89.00 |

|  |  |  |  |
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|  | **F1-Measure** | **Precision** | **Recall** |
| PER | 97.00 | 97.49 | 96.52 |
| LOC | 90.94 | 92.55 | 89.38 |
| ORG | 85.50 | 90.32 | 81.16 |

第82轮结果：

{'acc': 98.52887537993921, 'f1': 91.42857142857142, 'p': 93.83458646616542, 'r': 89.14285714285714, 'f1\_per': 98.2367758186398, 'p\_per': 99.48979591836735, 'r\_per': 97 .01492537313433, 'f1\_loc': 90.45936395759718, 'p\_loc': 93.43065693430657, 'r\_loc': 87.67123287671232, 'f1\_org': 86.06965174129351, 'p\_org': 88.71794871794872, 'r\_org': 83.57487922705315}

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| --- | --- | --- | --- |
| **Accuracy** | **F1-Measure** | **Precision** | **Recall** |
| 98.52 | 91.43 | 93.83 | 89.14 |

|  |  |  |  |
| --- | --- | --- | --- |
|  | **F1-Measure** | **Precision** | **Recall** |
| PER | 98.24 | 99.49 | 97.01 |
| LOC | 90.46 | 93.43 | 87.67 |
| ORG | 86.07 | 88.72 | 83.57 |

每一轮总的损失值[0:81]

[5363.324743099997, 2241.2641406999996, 1557.805051, 1175.8519952000017, 931.7302836599993, 763.7542083500007, 654.99399003, 560.7510163900004, 496.6013199000005, 441.32196952999976, 392.9374539899999, 356.90063034999986, 328.8622702699997, 298.13284129, 277.85264216999985, 249.88952663999996, 234.52279871999988, 214.68443945799996, 204.15062416199993, 191.58167880199977, 175.17529298499986, 167.745009143, 159.3090481920001, 143.9641921859999, 135.00384089000008, 131.21411750399992, 124.51624749599995, 120.99739265999997, 107.196758751, 104.965666666, 99.70549397800008, 96.409844949, 91.63145081999993, 89.15878342600003, 81.90139181499997, 79.946598631, 79.78545710579999, 80.9829309145, 75.42270009499997, 70.85089436400004, 68.52049107699997, 68.57820312049998, 64.18227634670001, 65.53686197, 60.8846807282, 61.79351916220003, 61.28441696069999, 60.77538780699997, 64.12499822100006, 56.77893356670002, 56.01299447759999, 56.40532897200001, 51.48972347369996, 54.07328272950007, 49.39237267300003, 53.02695868190002, 52.94683449829997, 50.473966278300026, 49.938738740699996, 48.566684569999985, 47.20052815300005, 45.122743040000024, 48.34275493550001, 48.69931023709999, 50.244189399499994, 48.20232153289999, 45.31293331049999, 47.417113746000005, 45.1993615451, 43.57401853380004, 46.74579654700002, 45.217887618999974, 42.65489377216998, 40.99709191700003, 45.90022485416002, 44.218159106899996, 45.32957788770001, 43.0915286435, 42.32011698085997, 42.6450208128, 42.48845278719998, **41.39583528089999**]