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1 C:\Users\ChunJiangWuYueMing\.conda\envs\ml_exp_torch\python.exe C:\PycharmPro
2 开始超参数调优实验...
3
4 测试不同学习率的影响...
5 训练模型: lr=0.0001, optimizer=Adam
6 测试准确率: 0.9894, 训练时间: 234.29秒
7 训练模型: lr=0.001, optimizer=Adam
8 测试准确率: 0.9906, 训练时间: 235.13秒
9 训练模型: lr=0.01, optimizer=Adam
10 测试准确率: 0.1135, 训练时间: 244.31秒
11 训练模型: lr=0.1, optimizer=Adam
12 测试准确率: 0.0974, 训练时间: 242.34秒
13
14 测试不同优化器的影响 (lr=0.001)...
15 训练模型: lr=0.001, optimizer=SGD
16 测试准确率: 0.9842, 训练时间: 220.22秒
17 训练模型: lr=0.001, optimizer=RMSprop
18 测试准确率: 0.9924, 训练时间: 223.77秒
19 Font 'default' does not have a glyph for '\u2212' [U+2212], substituting with a dummy
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52 超参数分析图已保存到 results/figures/hyperparameter_analysis.png
53
54 最佳超参数组合:
55 学习率: 0.001
56 优化器: RMSprop
57 测试准确率: 0.9924
58
59 超参数调优总时间: 1400.70 秒 (23.35 分钟)
60 实验日志已保存到 results/logs/hyperparameter_log.json
61
62 Process finished with exit code 0
63
```