

인공지능개론 과제#2 Fashion MNIST 데이터셋을 이용한 CNN 이미지 분류  
ICT융합공학부 202204010 공성택

조건)

1. cnn사용

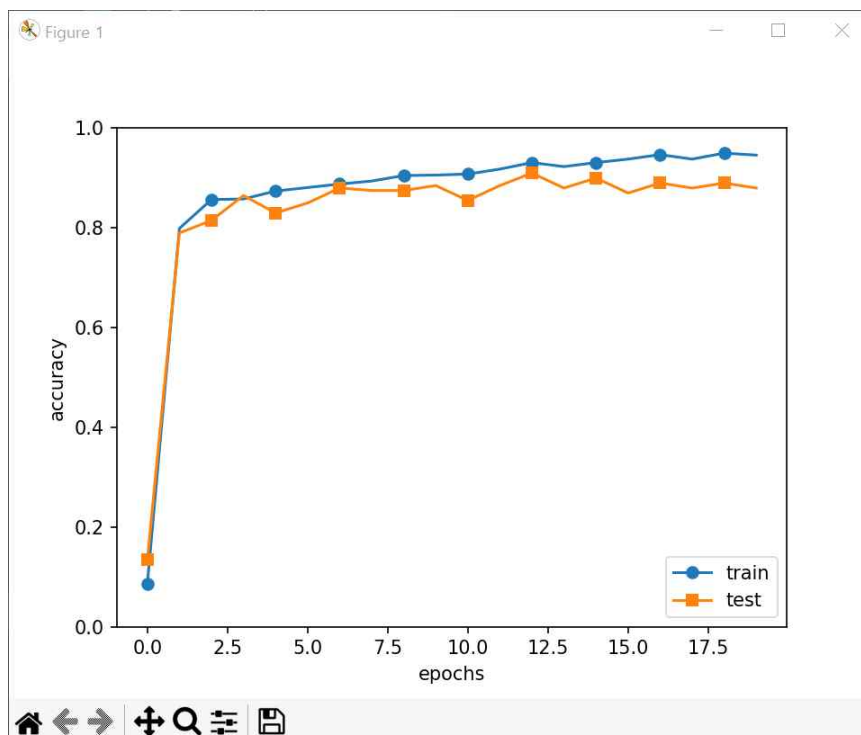
실습

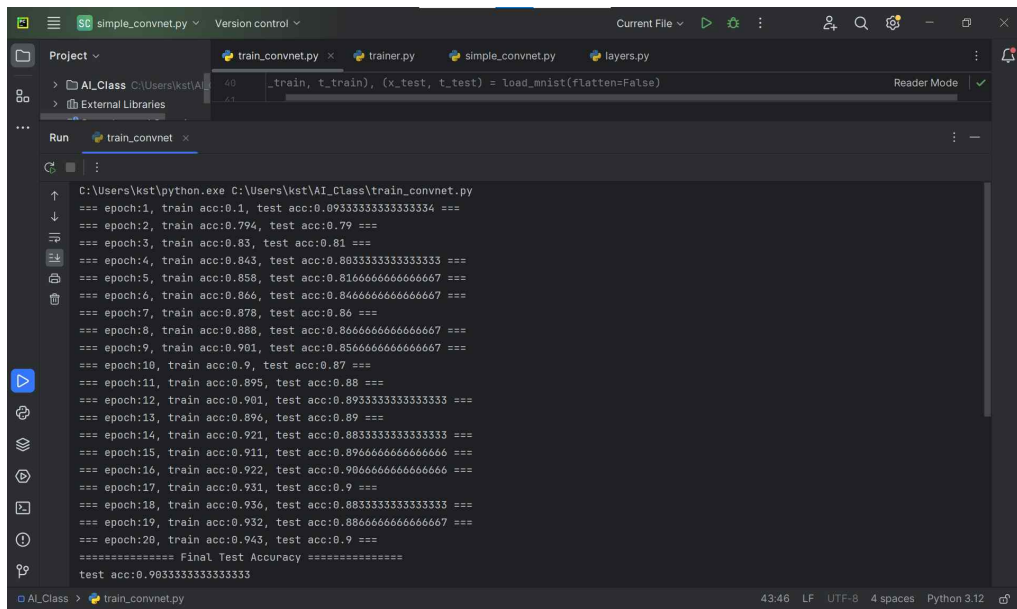
과적합 해결을 위한 드롭아웃 적용

하이퍼 파라미터 튜닝 작업

계층을 깊게하면 복잡해져서 오히려 학습이 잘 안되는 경향이 있어서 계층을 추가하지 않음

```
simple_convnet.py  Version control  Current File  Run  train_convnet.py  trainer.py  simple_convnet.py  layers.py
Run  train_convnet.py
C:\Users\kst\python.exe C:\Users\kst\AI_Class\train_convnet.py
=== epoch:1, train acc:0.687, test acc:0.135 ===
=== epoch:2, train acc:0.799, test acc:0.79 ===
=== epoch:3, train acc:0.857, test acc:0.815 ===
=== epoch:4, train acc:0.858, test acc:0.865 ===
=== epoch:5, train acc:0.874, test acc:0.83 ===
=== epoch:6, train acc:0.881, test acc:0.85 ===
=== epoch:7, train acc:0.888, test acc:0.88 ===
=== epoch:8, train acc:0.894, test acc:0.875 ===
=== epoch:9, train acc:0.905, test acc:0.875 ===
=== epoch:10, train acc:0.906, test acc:0.885 ===
=== epoch:11, train acc:0.908, test acc:0.885 ===
=== epoch:12, train acc:0.918, test acc:0.885 ===
=== epoch:13, train acc:0.931, test acc:0.91 ===
=== epoch:14, train acc:0.923, test acc:0.88 ===
=== epoch:15, train acc:0.931, test acc:0.9 ===
=== epoch:16, train acc:0.938, test acc:0.87 ===
=== epoch:17, train acc:0.947, test acc:0.89 ===
=== epoch:18, train acc:0.938, test acc:0.88 ===
=== epoch:19, train acc:0.95, test acc:0.89 ===
=== epoch:20, train acc:0.946, test acc:0.88 ===
===== Final Test Accuracy =====
test acc:0.89
Saved Network Parameters!
```





```

C:\Users\kst\python.exe C:\Users\kst\AI_Class\train_convnet.py
=== epoch:1, train acc:0.1, test acc:0.09333333333333334 ===
=== epoch:2, train acc:0.794, test acc:0.79 ===
=== epoch:3, train acc:0.83, test acc:0.81 ===
=== epoch:4, train acc:0.843, test acc:0.8033333333333333 ===
=== epoch:5, train acc:0.858, test acc:0.8166666666666667 ===
=== epoch:6, train acc:0.866, test acc:0.8466666666666667 ===
=== epoch:7, train acc:0.878, test acc:0.86 ===
=== epoch:8, train acc:0.888, test acc:0.8666666666666667 ===
=== epoch:9, train acc:0.901, test acc:0.8566666666666667 ===
=== epoch:10, train acc:0.9, test acc:0.87 ===
=== epoch:11, train acc:0.895, test acc:0.88 ===
=== epoch:12, train acc:0.901, test acc:0.8933333333333333 ===
=== epoch:13, train acc:0.896, test acc:0.89 ===
=== epoch:14, train acc:0.921, test acc:0.8833333333333333 ===
=== epoch:15, train acc:0.911, test acc:0.8966666666666666 ===
=== epoch:16, train acc:0.922, test acc:0.9066666666666666 ===
=== epoch:17, train acc:0.931, test acc:0.9 ===
=== epoch:18, train acc:0.936, test acc:0.8033333333333333 ===
=== epoch:19, train acc:0.932, test acc:0.8066666666666667 ===
=== epoch:20, train acc:0.943, test acc:0.9 ===
===== Final Test Accuracy =====
test acc:0.9033333333333333

```

학습데이터는 최대 95%를 넘고

테스트데이터는 최대 91%까지 나타나는 경향을 보임

드롭아웃과 하이퍼파라미터튜닝을 통해 과적합을 해결한 모습을 보였다.