FASHION ITEM CLASSIFICATION

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INTRODUCTION

OBJECTIVE: BUILD AN IMAGE CLASSIFIER TO IDENTIFY CLOTHING ITEMS USING THE FASHION MNIST DATASET AND VISUALIZE RESULTS USING A CONFUSION MATRIX.

WHY FASHION MNIST?
- BALANCED DATASET
- REALISTIC GRAYSCALE FASHION IMAGES

SOURCE: ZALANDO RESEARCH VIA KAGGLE

DETAILS: 70,000 GRAYSCALE IMAGES
60,000 FOR TRAINING
10,000 FOR TESTING

10 FASHION CATEGORIES: T-SHIRT/TOP, TROUSER, PULLOVER, DRESS, COAT, SANDAL, SHIRT, SNEAKER, BAG, ANKLE BOOT

DATA PREPROCESSING

- NORMALIZED PIXEL VALUES (0–255 → 0–1)
- RESHAPED IMAGES FOR CNN INPUT
- SPLIT INTO TRAINING AND VALIDATION SETS

MODEL ARCHITECTURE: CONVOLUTIONAL NEURAL NETWORK (CNN)

- INPUT: 28X28X1
- CONV LAYER 1: 32 FILTERS, 3X3, RELU
- MAX POOLING: 2X2
- CONV LAYER 2: 64 FILTERS, 3X3, RELU
- MAX POOLING: 2X2
- FLATTEN
- DENSE LAYER: 128 UNITS, RELU
- OUTPUT LAYER: 10 UNITS, SOFTMAX

EVALUATION

- ## FINAL TEST ACCURACY
- ## CONFUSION MATRIX VISUALIZATION

CONCLUSION

1. **CNN PERFORMED WELL ON FASHION ITEM CLASSIFICATION**
2. **ACHIEVED GOOD ACCURACY WITH BASIC ARCHITECTURE**

REFERENCES

1. FASHION MNIST DATASET ON KAGGLE
2. TENSORFLOW/KERAS DOCUMENTATION