



FASHION MNIST

FINAL PROJECT

GROUP: IT1-2203
MEMBERS:
KUDAIBERGEN SULTANTORE
BEKKALIEV ALIKHAN
KENESBEK ABYLAI
KENES ZANGAR

FASHION MNIST – A DATASET FOR CLOTHING RECOGNITION

Research and Applications in Machine Learning

What is Fashion MNIST ?

- A dataset created by Zalando, a fashion retailer
 - Contains 70,000 images of clothing (28×28 px, grayscale)
 - 10 categories: T-shirts, dresses, shoes, bags, etc.
 - Used for training and testing AI and computer vision models
-

WHY DID WE CHOOSE THIS DATASET?



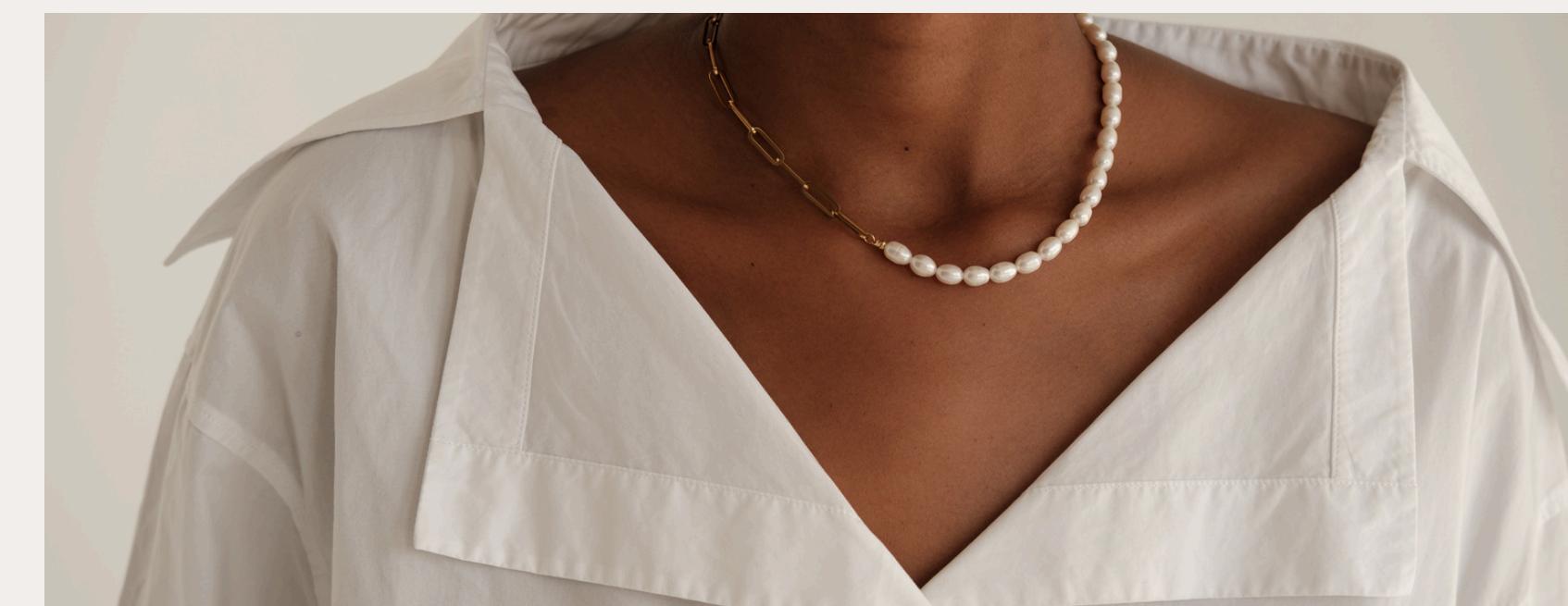
- More realistic and challenging than classic digit MNIST
- Simple and lightweight – easy to train models on
- Great for benchmarking and comparing algorithms
- The theme (fashion) is visually engaging and relatable



WHY DOES FASHION MNIST MATTER?



- Used in e-commerce platforms for product recognition
- Powers recommendation systems and auto-tagging
- Helps build virtual try-on and AR applications
- Ideal for student training and prototyping real AI solutions



MACHINE VISION

What is it?

Machine vision is a technology that enables machines to “see” and analyze images.

How does it work?

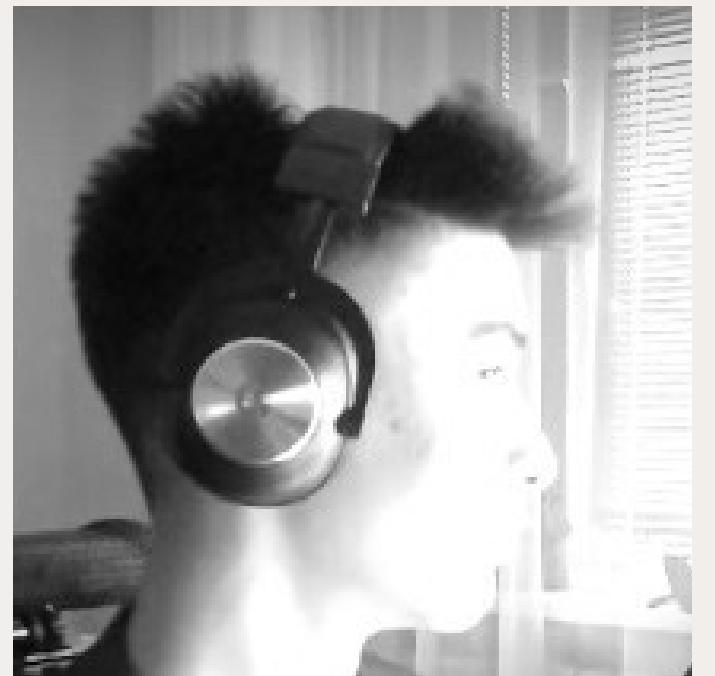
1. Image capture
2. Processing
3. Object analysis
4. Decision making

The project does not use ready-made models, but builds its own convolutional neural network (CNN). This indicates a good understanding of architecture and the learning process.

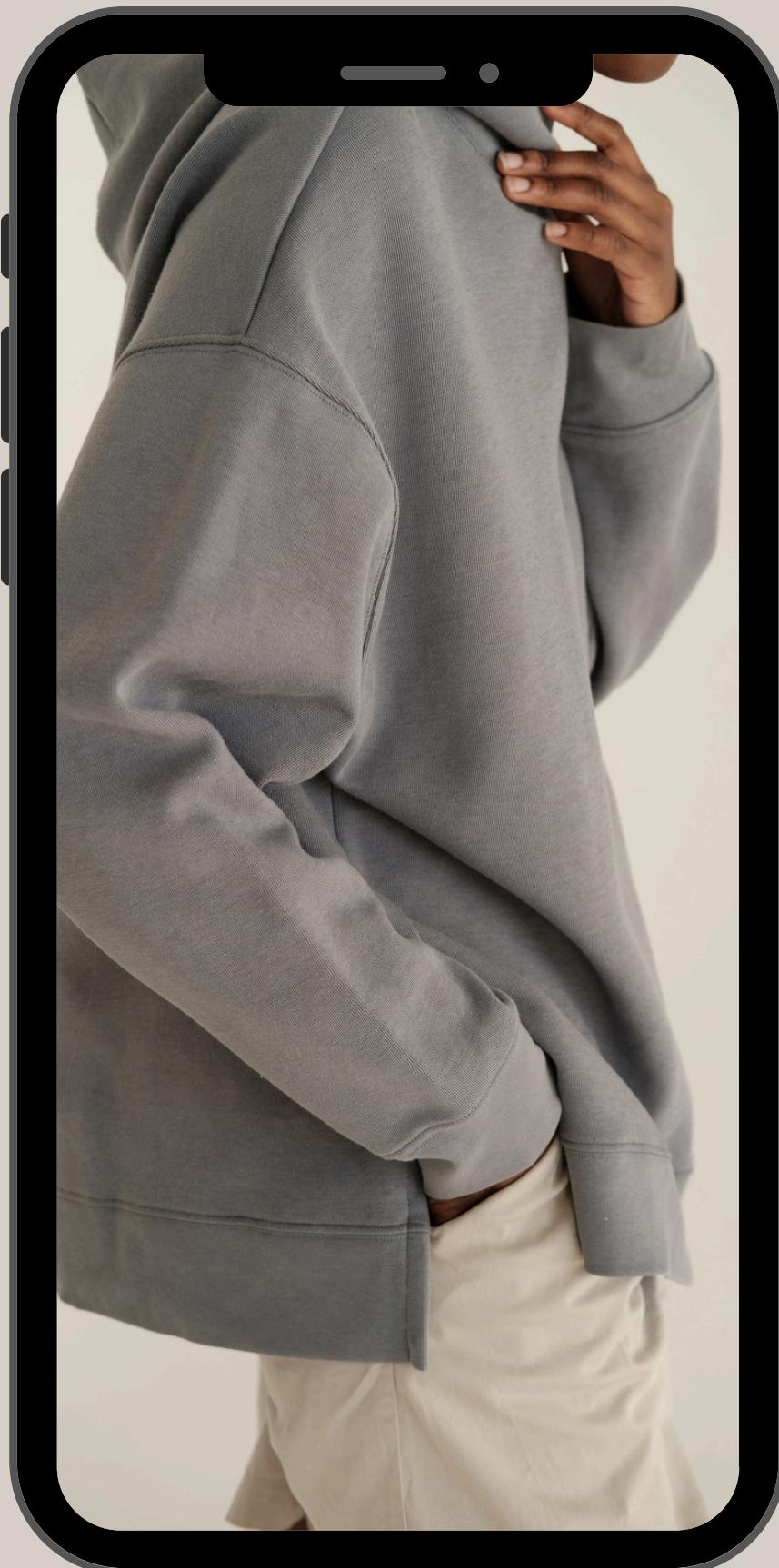
- Conv2D, MaxPooling2D, Flatten, Dense layers are used – a classic but powerful structure.
-
- This makes the project educational and visual – it is well suited for demonstrating the work of neural networks.



A CLEAN CNN IMPLEMENTATION FROM SCRATCH (ON KERAS)



TECHNOLOGIES USED WITH FASHION MNIST



- Dataset: Fashion MNIST – contains 70,000 images of clothes in grayscale, divided into 10 categories.
- Model: Convolutional Neural Network (CNN), built using Thensorflow/Karas.
- Data Processing: Normalization and preprocessing of images to improve learning quality.
- Model Evaluation: Using accuracy metrics, the error matrix, and the classification report to evaluate model performance.



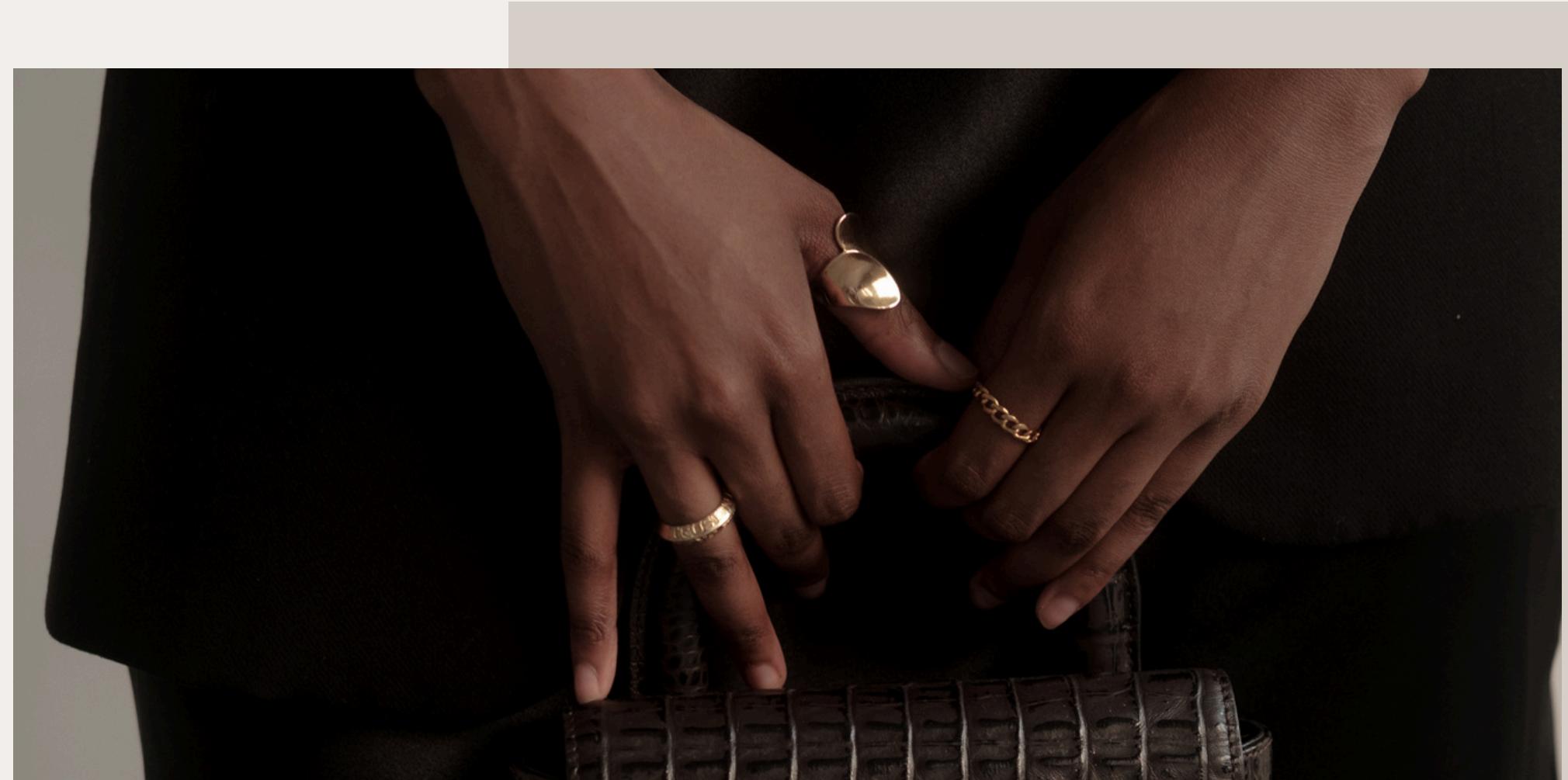
REPOSITORY STRUCTURE

- main.py : The main script for training and evaluating the model.
- fashion_miss_model.karas: Saved model in Keras format.
- README.md : Project description and launch instructions.
- images/: A folder for storing images (possibly examples of input data or results).

CONCLUSION



Our project demonstrates the application of modern deep learning methods for the task of classifying clothing images. Using Fashion MNIST allows you to effectively train a model and evaluate its performance, which can serve as the basis for more complex computer vision systems in real-world applications.



THANKS FOR
YOUR
ATTENTION