



#4 Transfer Learning

AI Training

Recap: CNN

- More training images → higher model accuracy
- Example:
 - **1,000 training images** → lower accuracy
 - **8,000 training images** → higher accuracy
- Challenge: Often we don't have large datasets

Why Transfer Learning?

- Training from scratch requires huge labeled datasets
- **Transfer Learning** allows us to:
 - Use **pretrained models** trained on millions of images
 - Fine-tune them on our **specific dataset**
- Saves time & resources

Transfer Learning Architectures

- We will focus on:
 - VGG family (e.g., VGG16)
 - Residual Networks (ResNet)

Chapter Summary

- What you will learn:
 - Transfer Learning concepts
 - VGG16 & ResNet architectures
 - Multi-task Learning (Age & Gender)

Practice

Train a CNN

Transfer Learning for Image Classification

Transfer Learning

**Any
questions?**

An abstract graphic featuring a network of interconnected nodes and lines. The nodes are represented by small circles in various shades of orange and brown, some of which are highlighted with a white border. The lines are thin and light-colored, creating a complex web-like structure that fills the background. The overall aesthetic is modern and technological.

THANKS