

# Your First AI Project - Summary

## Project Flowchart Summary

### 1. Dataset: MNIST

- 60,000 handwritten digit images (0-9)
- Each image is labeled

### 2. Preprocessing

- Convert images to tensors, normalize, and batch

### 3. Model: CNN (Convolutional Neural Network)

- Learns visual patterns using filters
- Layers: Conv -> ReLU -> Pool -> FC

### 4. Training

- Teach the model with examples
- Improves accuracy through loss and backpropagation

### 5. Testing

- Evaluate the model with unseen data
- Accuracy: 97-99%

### 6. Save Model

- Save the trained brain to a file (.pth)

### 7. Convert to ONNX

- Export to a universal format for deployment (.onnx)

### 8. Inference

- Run the model on new images
- Predict digits quickly and accurately

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## Key Concepts (Layman's Terms)

- AI Model -> A trained digital brain that can recognize digits
- Training -> Teaching the brain using labeled examples
- CNN -> Brain architecture good at understanding images
- Inference -> The AI making a prediction
- ONNX -> A universal format to save the trained brain
- PyTorch/Colab -> Your building and learning environment
- ONNX Runtime -> A tool to run your model anywhere efficiently