```python
import tensorflow as tf
from tensorflow.keras.models import Sequential
from tensorflow.keras.layers import Conv2D, MaxPooling2D, Flatten, Dense
from tensorflow.keras.datasets import mnist
from tensorflow.keras.utils import to_categorical
import matplotlib.pyplot as plt

(x_train, y_train), (x_test, y_test) = mnist.load_data()
x_train = x_train.reshape(-1, 28, 28, 1) / 255.0
x_test = x_test.reshape(-1, 28, 28, 1) / 255.0
y_train = to_categorical(y_train, 10)
y_test = to_categorical(y_test, 10)

model = Sequential([
    Conv2D(32, (3, 3), activation='relu', input_shape=(28, 28, 1)),
    MaxPooling2D((2, 2)),
    Conv2D(64, (3, 3), activation='relu'),
    MaxPooling2D((2, 2)),
    Flatten(),
    Dense(64, activation='relu'),
    Dense(10, activation='softmax')
])

model.compile(optimizer='adam', loss='categorical_crossentropy', metrics=['accuracy'])

history = model.fit(x_train, y_train, epochs=10, validation_data=(x_test, y_test))

plt.figure(figsize=(12, 4))

plt.subplot(1, 2, 1)
plt.plot(history.history['loss'], label='Train Loss')
plt.plot(history.history['val_loss'], label='Validation Loss')
plt.xlabel('Epochs')
plt.ylabel('Loss')
plt.legend()

plt.subplot(1, 2, 2)
plt.plot(history.history['accuracy'], label='Train Accuracy')
plt.plot(history.history['val_accuracy'], label='Validation Accuracy')
plt.xlabel('Epochs')
plt.ylabel('Accuracy')
plt.legend()

plt.show()
```

```
/usr/local/lib/python3.10/dist-packages/keras/src/layers/convolutional/base_conv.py:107: UserWarning: Do not pass an `input_shape`/`inpu
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
Epoch 1/10
1875/1875 ──────────────── 61s 32ms/step - accuracy: 0.8962 - loss: 0.3293 - val_accuracy: 0.9782 - val_loss: 0.0656
Epoch 2/10
1875/1875 ──────────────── 78s 30ms/step - accuracy: 0.9842 - loss: 0.0512 - val_accuracy: 0.9861 - val_loss: 0.0401
Epoch 3/10
1875/1875 ──────────────── 82s 30ms/step - accuracy: 0.9888 - loss: 0.0361 - val_accuracy: 0.9880 - val_loss: 0.0368
Epoch 4/10
1875/1875 ──────────────── 56s 30ms/step - accuracy: 0.9926 - loss: 0.0245 - val_accuracy: 0.9897 - val_loss: 0.0305
Epoch 5/10
1875/1875 ──────────────── 56s 30ms/step - accuracy: 0.9942 - loss: 0.0176 - val_accuracy: 0.9889 - val_loss: 0.0353
Epoch 6/10
1875/1875 ──────────────── 81s 29ms/step - accuracy: 0.9954 - loss: 0.0136 - val_accuracy: 0.9911 - val_loss: 0.0303
Epoch 7/10
1875/1875 ──────────────── 83s 30ms/step - accuracy: 0.9963 - loss: 0.0109 - val_accuracy: 0.9910 - val_loss: 0.0332
Epoch 8/10
1875/1875 ──────────────── 82s 30ms/step - accuracy: 0.9970 - loss: 0.0088 - val_accuracy: 0.9911 - val_loss: 0.0328
Epoch 9/10
1875/1875 ──────────────── 87s 33ms/step - accuracy: 0.9971 - loss: 0.0090 - val_accuracy: 0.9902 - val_loss: 0.0338
Epoch 10/10
1875/1875 ──────────────── 78s 31ms/step - accuracy: 0.9977 - loss: 0.0071 - val_accuracy: 0.9899 - val_loss: 0.0390
```