Fruit
Classification

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1. Homemade CNN Architecture

The Flow

```
Config: Environment
        ↓
Data Preprocessing
        ↓
Modeling
        ↓
Classification Report
```

1. Homemade CNN architecture

Why it Failed?

What the failure is?

- Training AUC and Accuracy are high.
- Validation are high too.
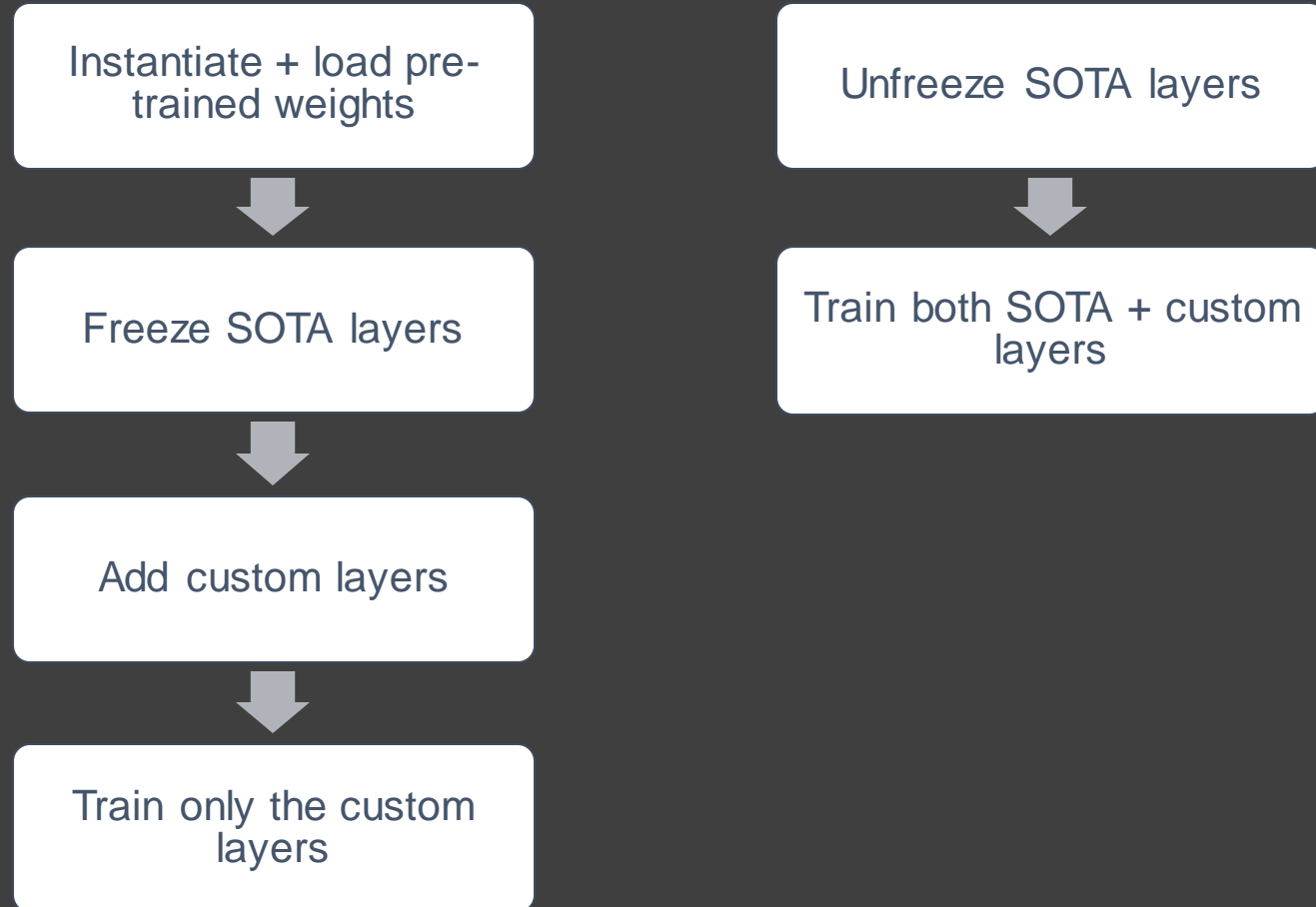
- But poor predictions.

1. Homemade CNN architecture

Why it Failed?

- Incorrect coding

- Incorrect preprocessing

- Keras or TensorFlow [malfunction](#)

- Overfitting
  - Image augmentation
  - Dropout
  - Regularization

  - Simplify model
  - Early stopping

- Validation set not representative enough

2. SOTA Architectures

Workflow of Transfer Learning

Instantiate + load pre-trained weights

↓

Freeze SOTA layers

↓

Add custom layers

↓

Train only the custom layers

Unfreeze SOTA layers

↓

Train both SOTA + custom layers

1. Minutes for Environment Comparing

	Conda – Docker PC	Google Colab	Cloud Platform
User-friendly	Hard	Easy	
Speed	Fast	Killing slow	
Multi-thread	Worse	Good	
Failed your trust	Sometime	Always	