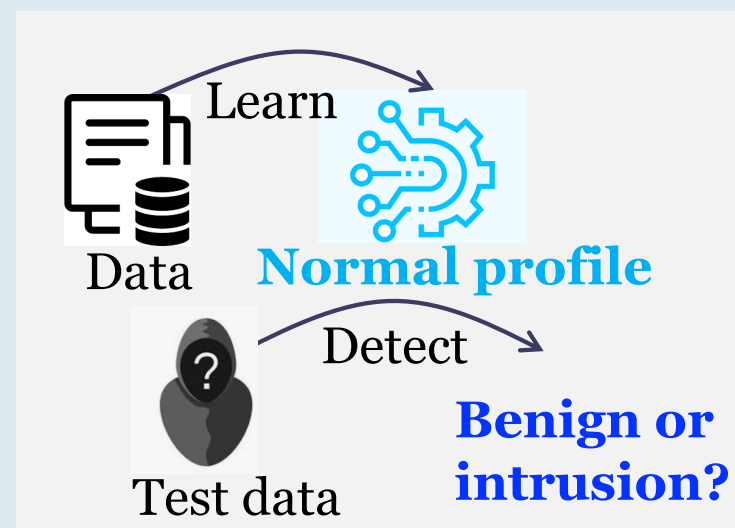


ML-based IDS



```
function(x, Normal_profile):
    dev = x - Normal_profile
    If dev > threshold:
        Alarm
    else:
        No Alarm
```

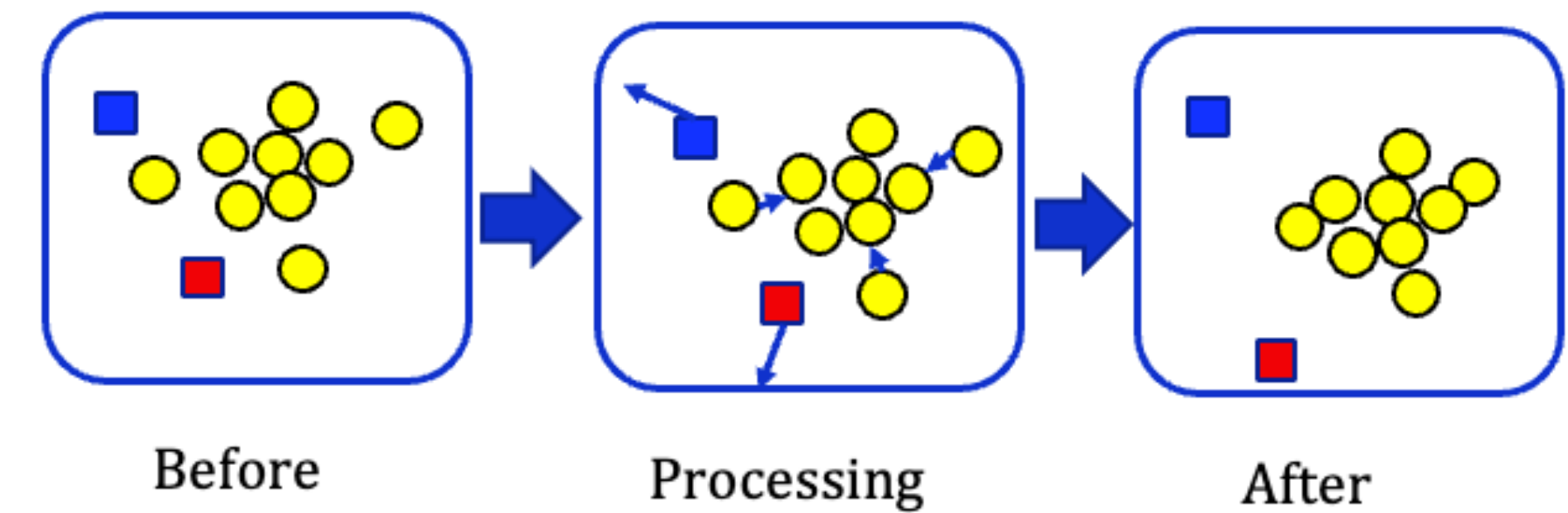
Zero-day attack



Problems: False positives

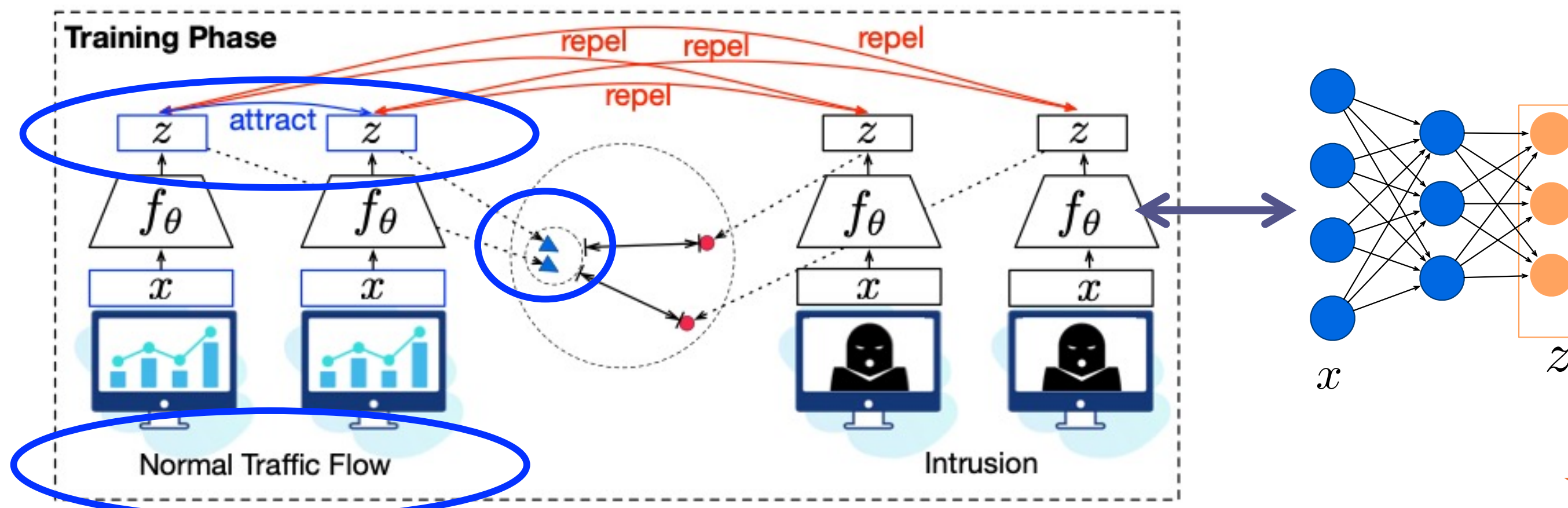
Build a robust **Normal Profile**:

- Low variance in Normal instances
- High discrepancy between normal profile and intrusions.

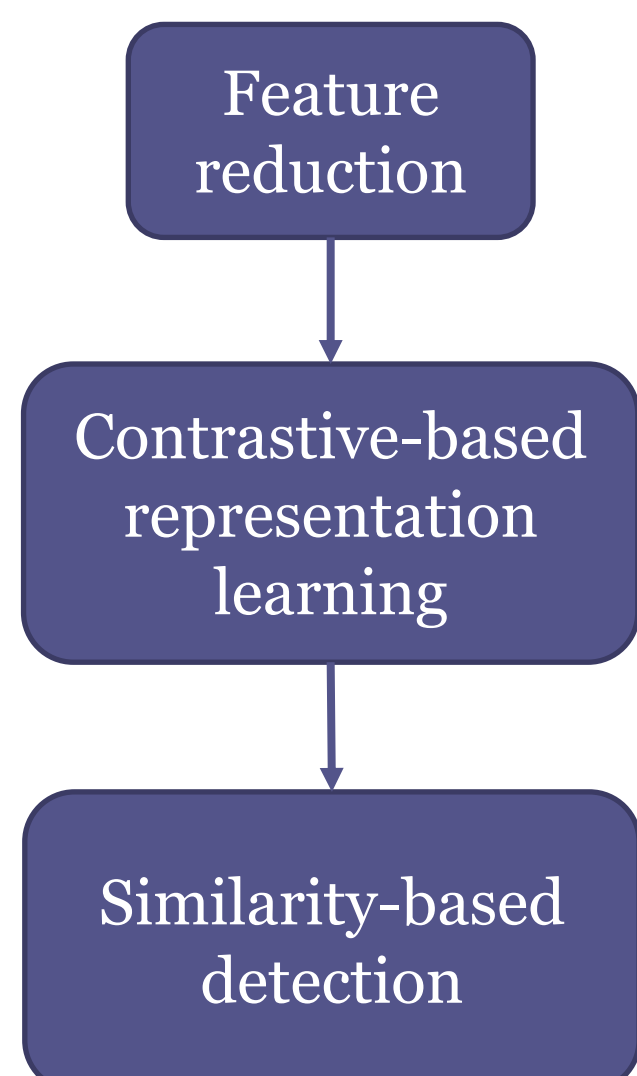


● Normal traffic flow
■ Intrusions

Contrastive learning-based representation learning



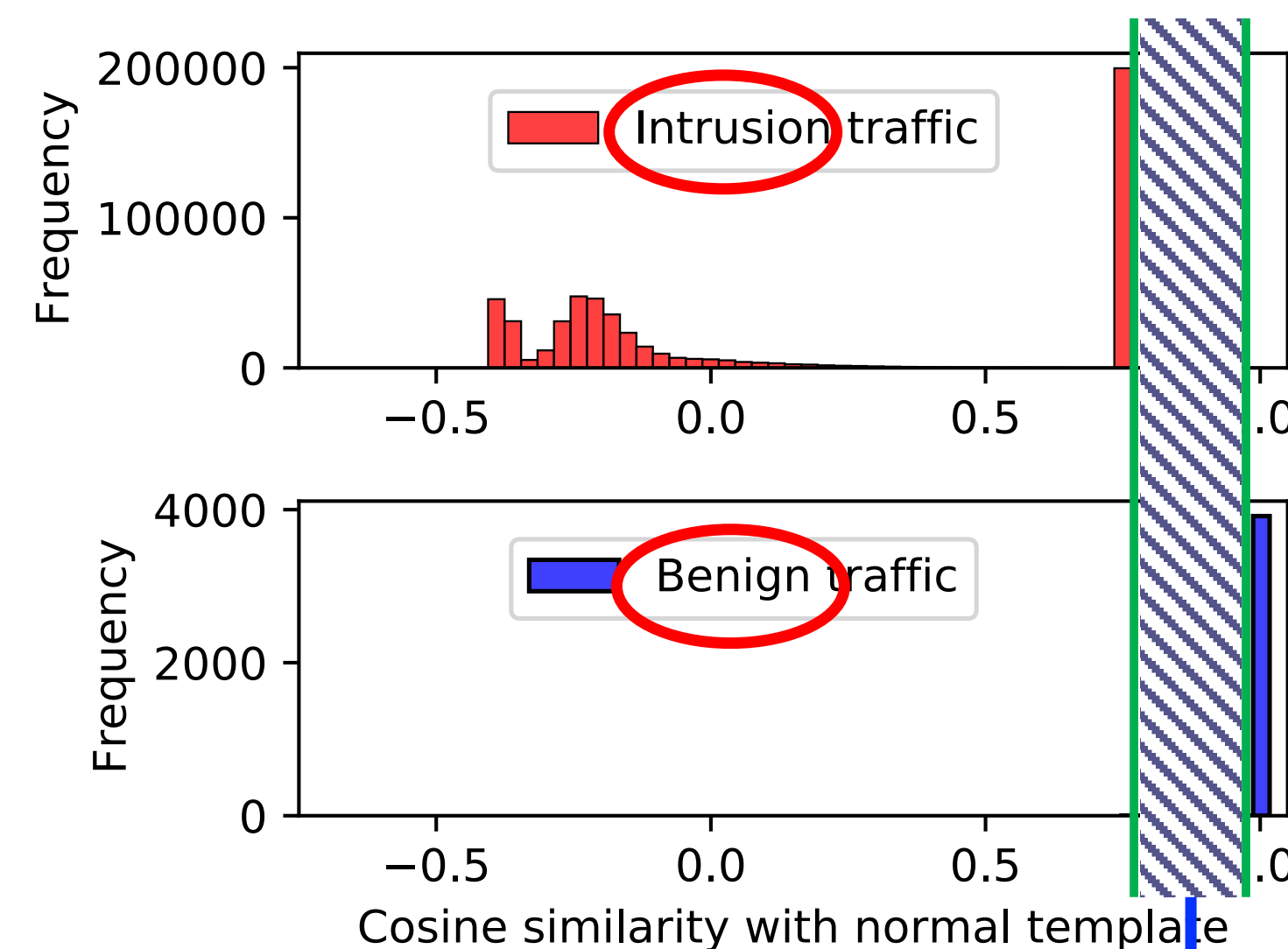
• Pipeline



[Fea]

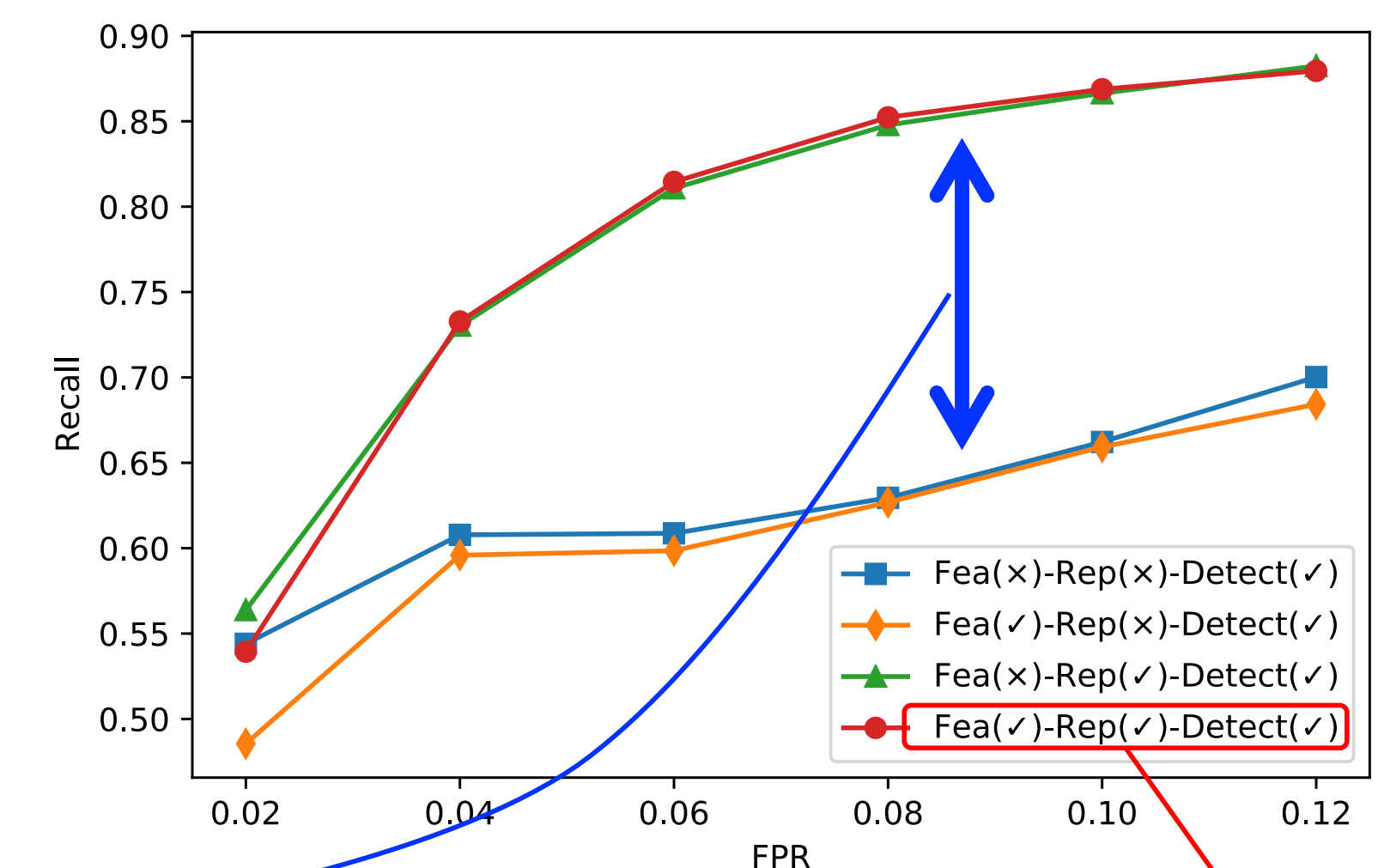
[Rep]

[Detect]



A range to separate intrusions and benign

• Ablation study



Improvements by contrastive-based representation learning

Proposed FeCo