# Understanding the Effect of Bias in Deep Anomaly Detection

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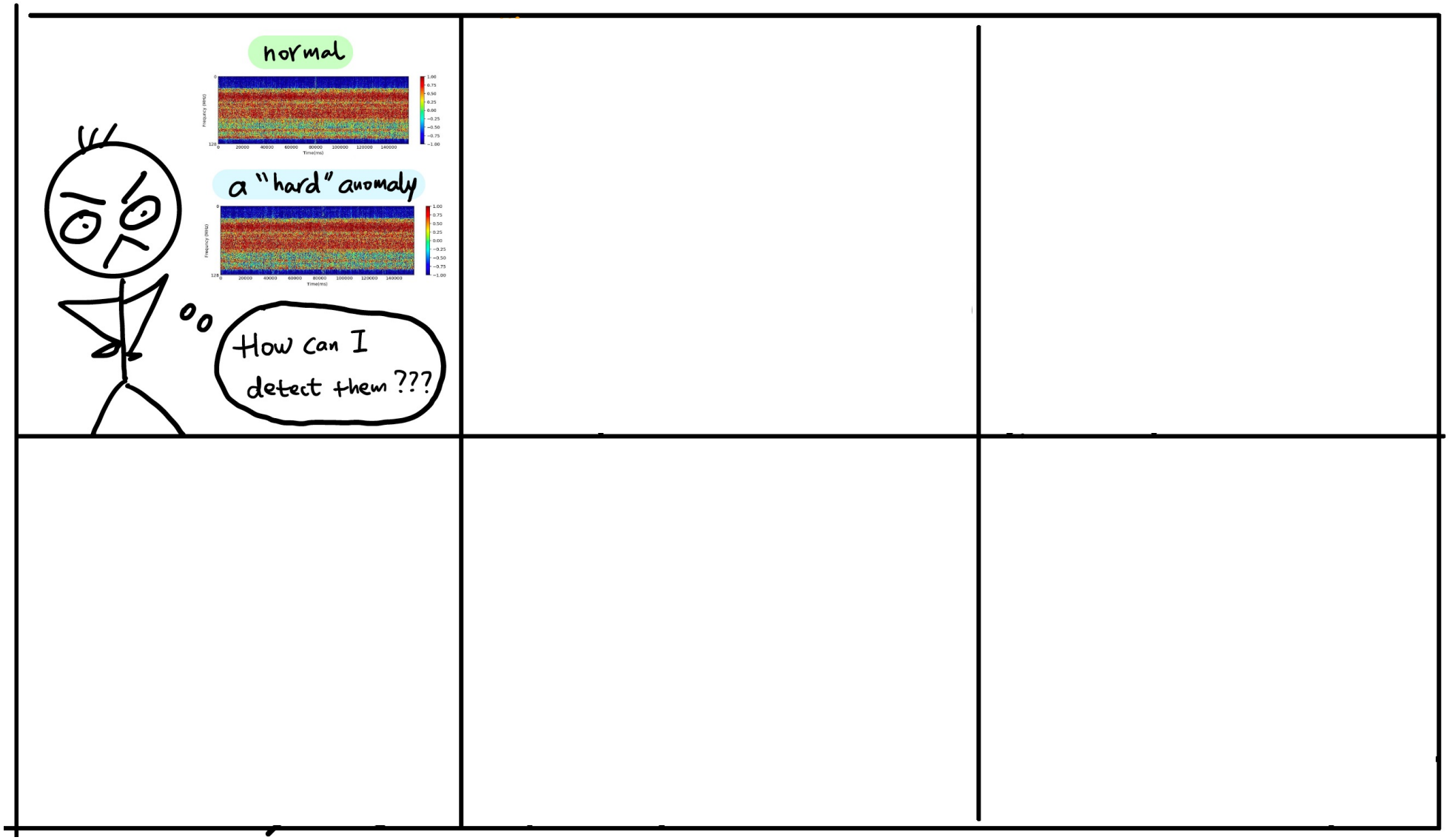
# Motivation: A Real Story



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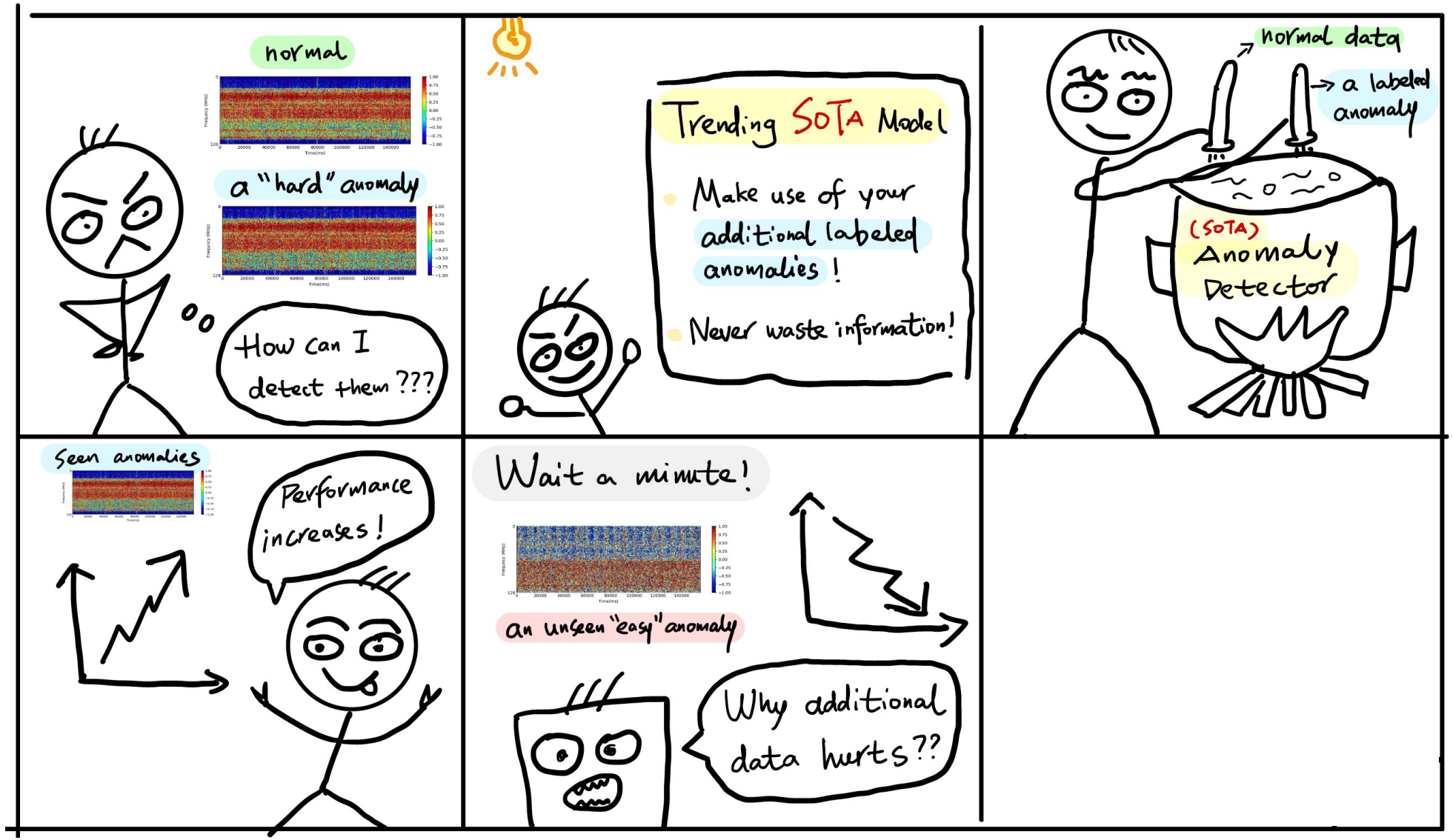

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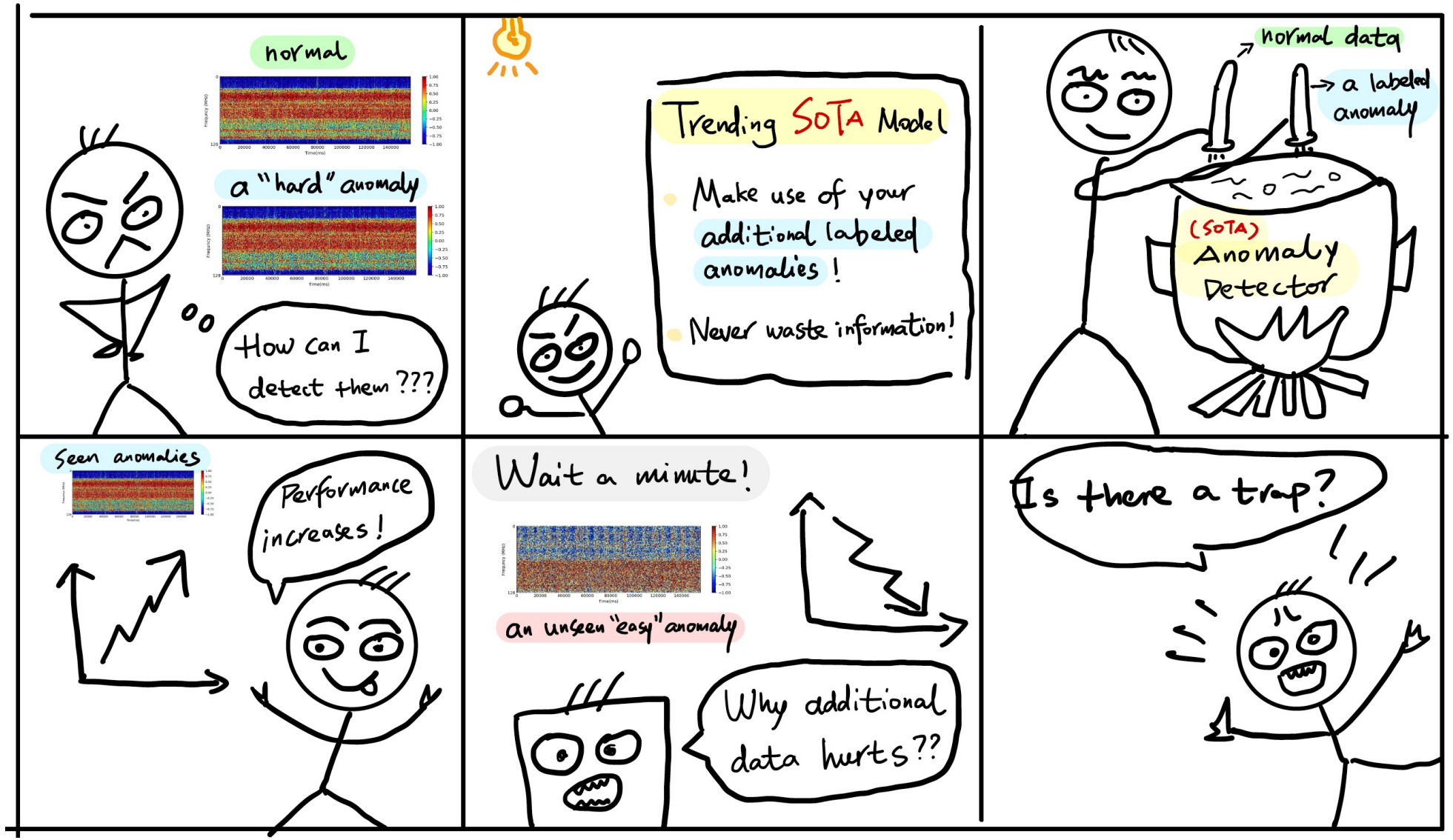

# Our Contributions

1. *Define* Bias: A formal ERM Framework

$$\hat{\xi}(s, s') := \widehat{\mathrm{TPR}}(s', \tau') - \widehat{\mathrm{TPR}}(s, \tau)$$

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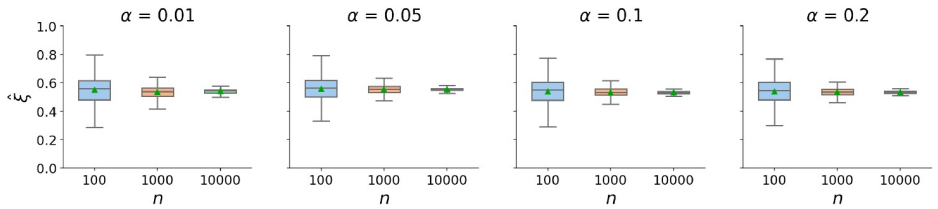
$$n = \mathcal{O}\left(\frac{1}{\alpha^2 \epsilon^2} \log \frac{1}{\delta}\right)$$



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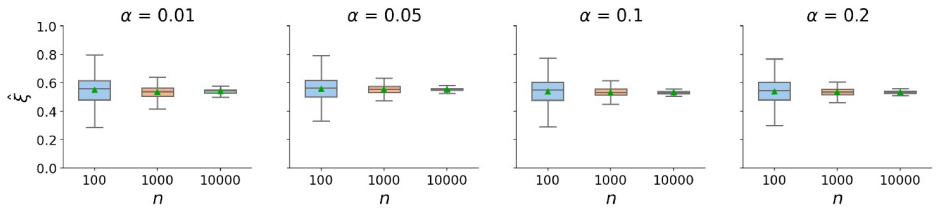
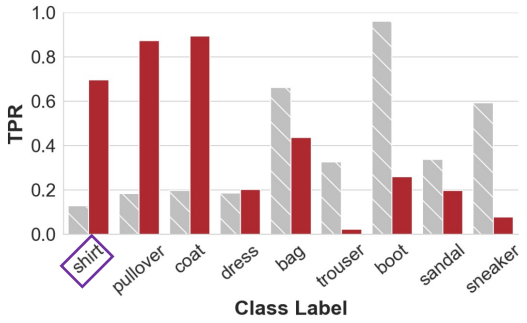
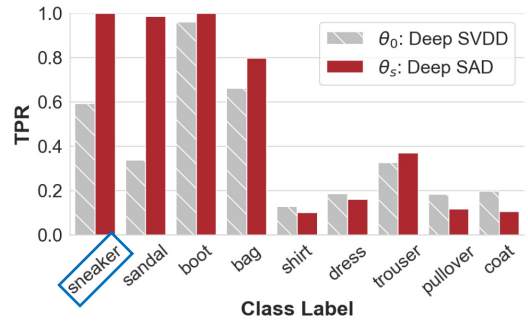



3 *Characterize* Bias: Empirical Experiments




Scenario 1: Training w/ *Hard* Anomalies




Scenario 2: Training w/ *Easy* Anomalies

# Thank you!