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# Test-Time Prompt-Agnostic Decomposition

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## Stabilizing prompt trajectories improves test-time adaptation

A plug-in for visual and text prompts, evaluated on 15 datasets and 10 baselines.

## Why updates become unstable

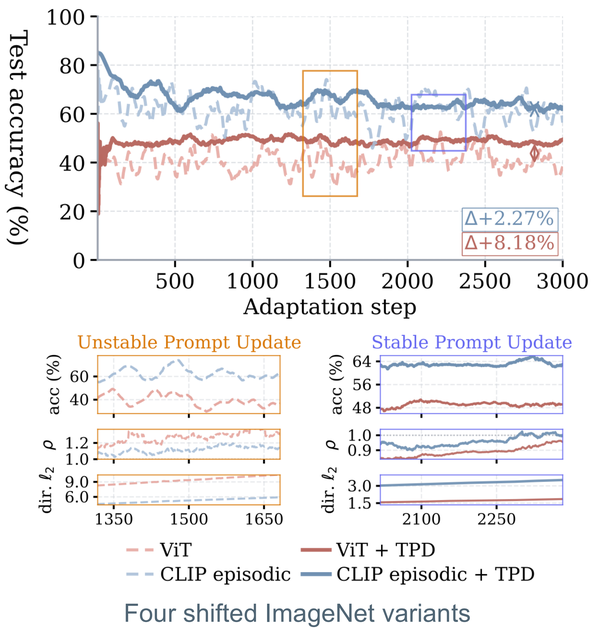
Unlabeled updates can accumulate noise across test-time steps.

### Magnitude expansion

Oversized steps move prompts too far.

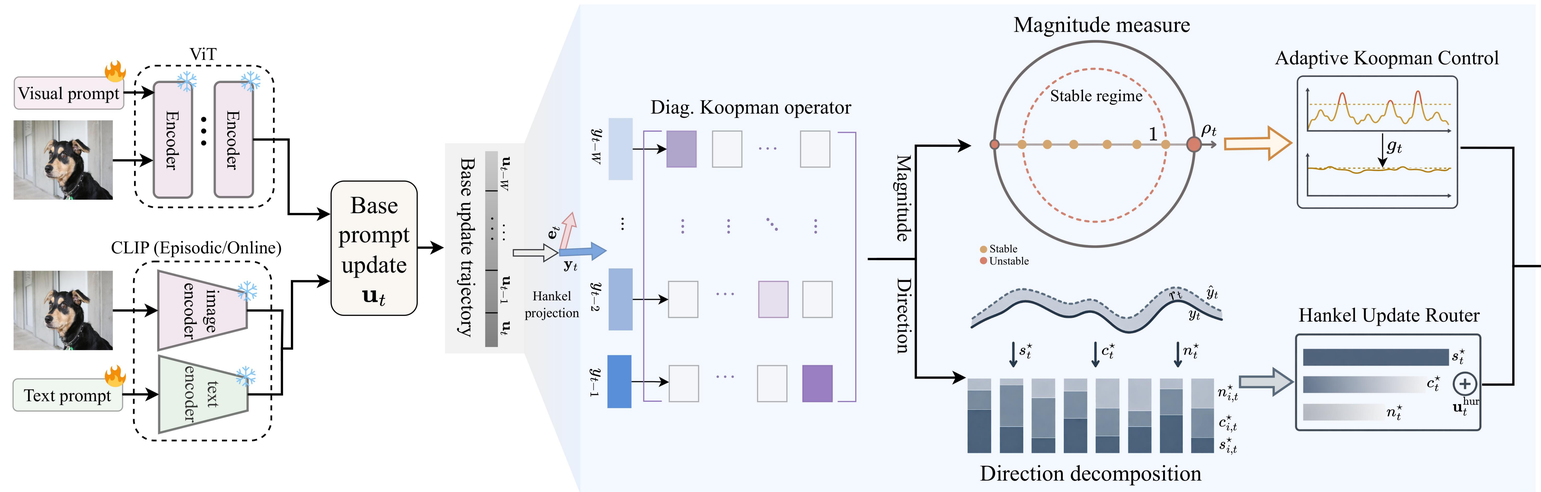
### Directional drift

Consecutive update vectors disagree.




Four shifted ImageNet variants

## TPD: magnitude and direction control




## Both modules contribute

OOD mean accuracy (%)

| Variant | VPT | TPT |
|---|---|---|
| Baseline | 39.66 | 60.81 |
| + AKC | 45.92 | 62.56 |
| + HUR | 45.98 | 62.84 |
| **+ TPD** | **47.84** | **63.08** |

## OOD mean gain (pp)

