

# AVisT: A Benchmark for Visual Object Tracking in Adverse Visibility

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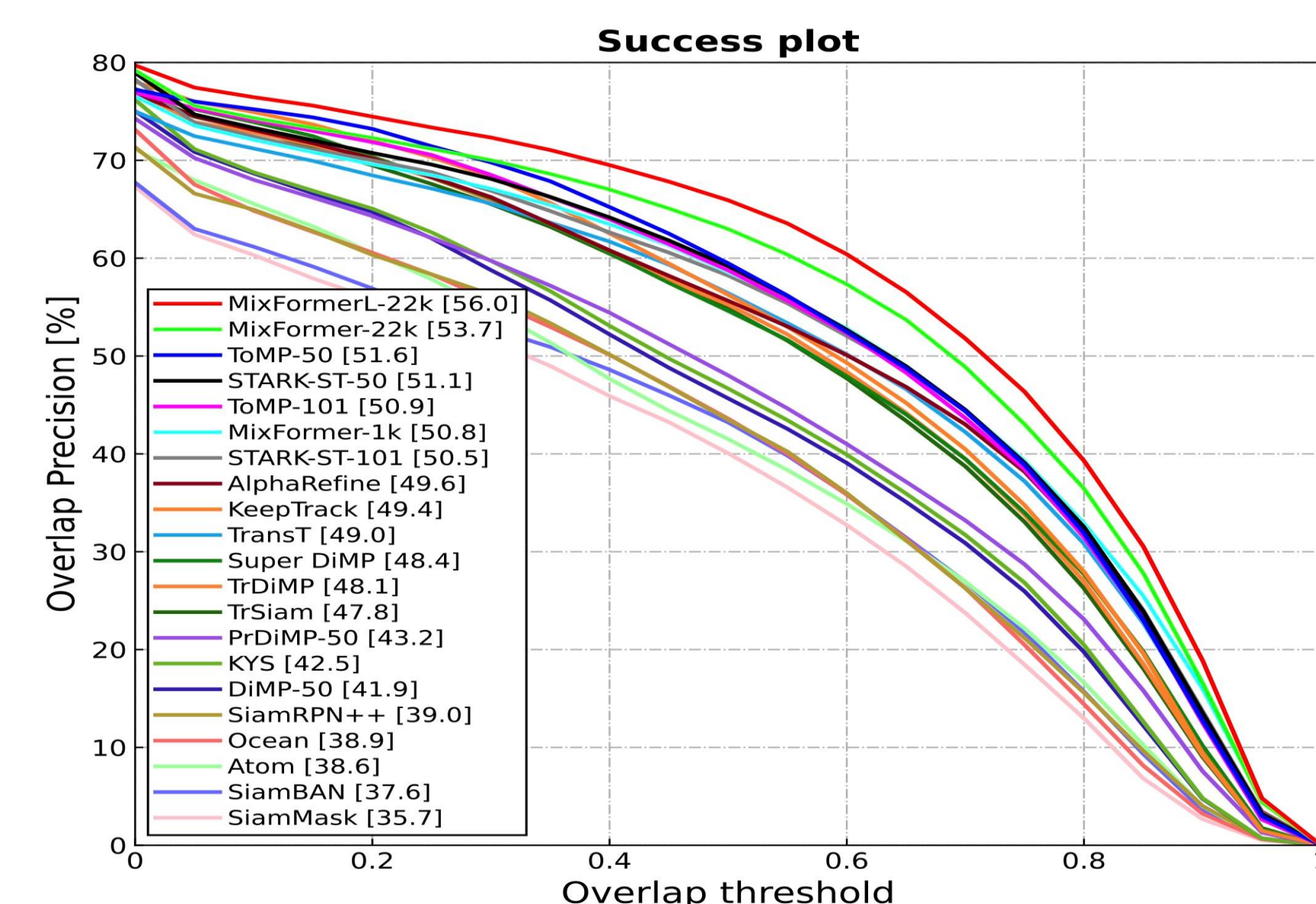
## Introduction

Existing benchmark datasets don't pose much difficulty to SOTA trackers due to:

- Introduction of sophisticated transformer-based methods
- Lack of diverse scenarios like adverse weather conditions, camouflage, and imaging effects

## Contributions

- Propose AVisT benchmark for visual object tracking having diverse scenarios with adverse visibility
- Evaluate 17 popular trackers on AVisT including most recent SOTA methods



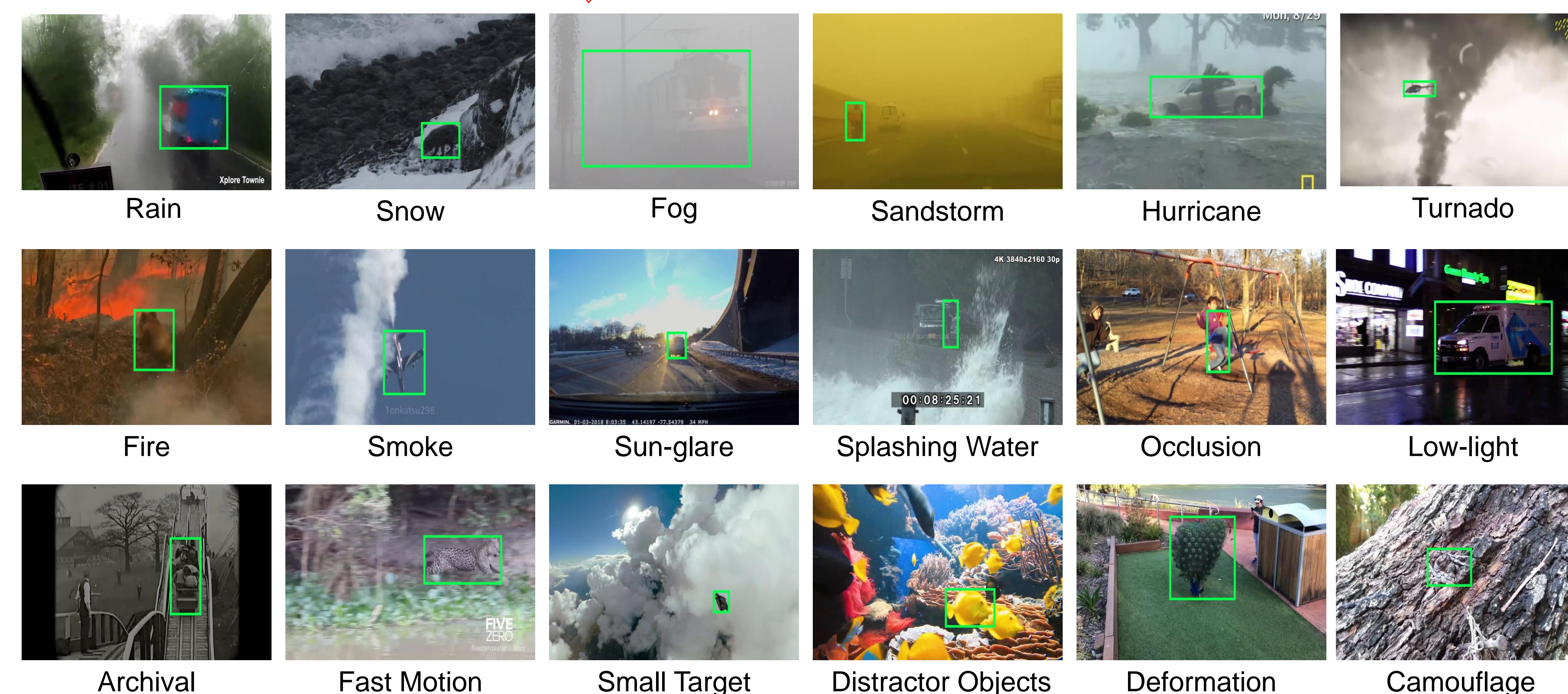
## SOTA Tracker's Evaluation

- LaSOT evaluation metric is used.
- Success** is Intersection over union of ground truth and predicted box.
- Area under the curve (AUC) is used to rank trackers.

## AVisT Benchmark

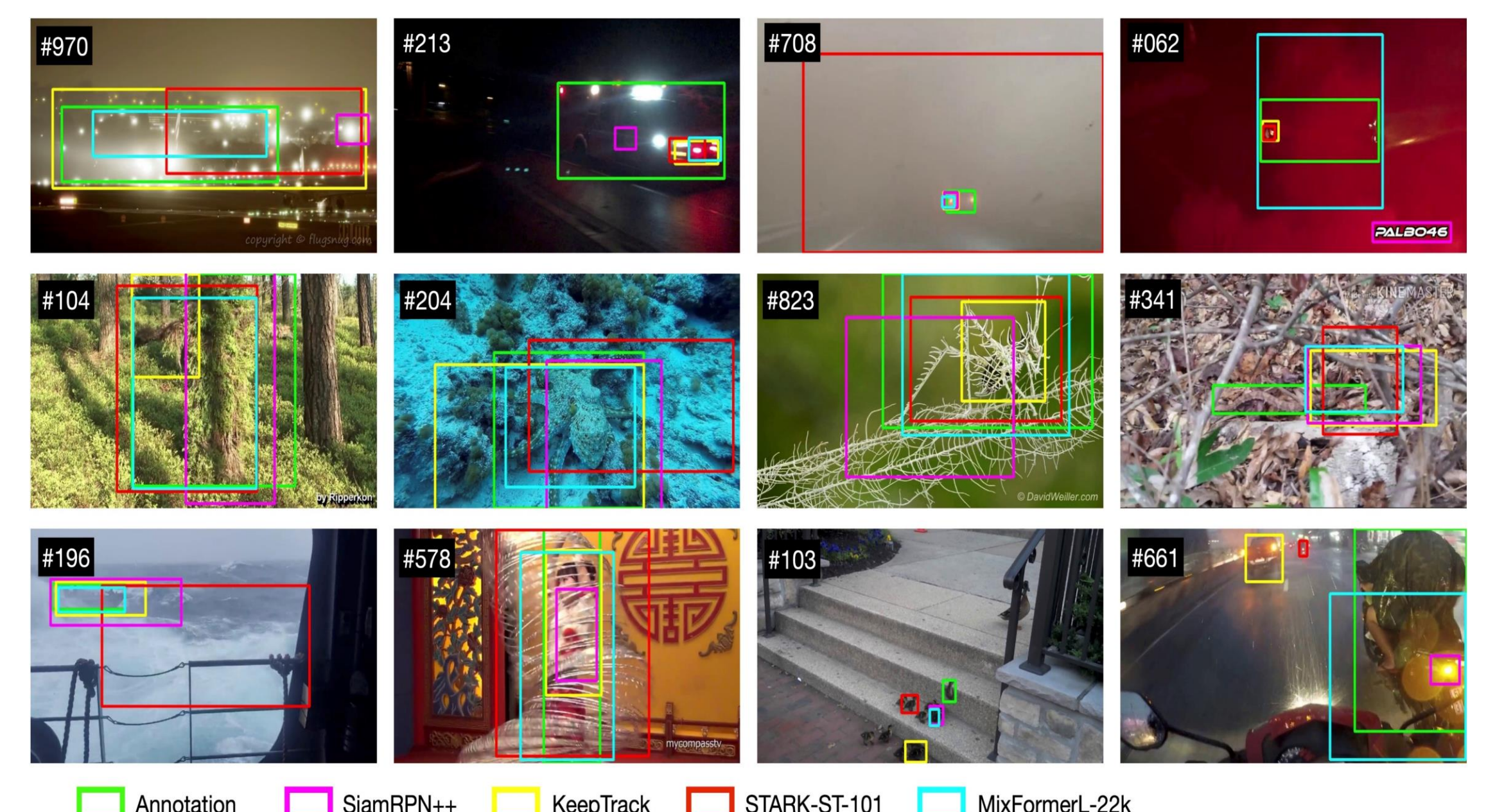
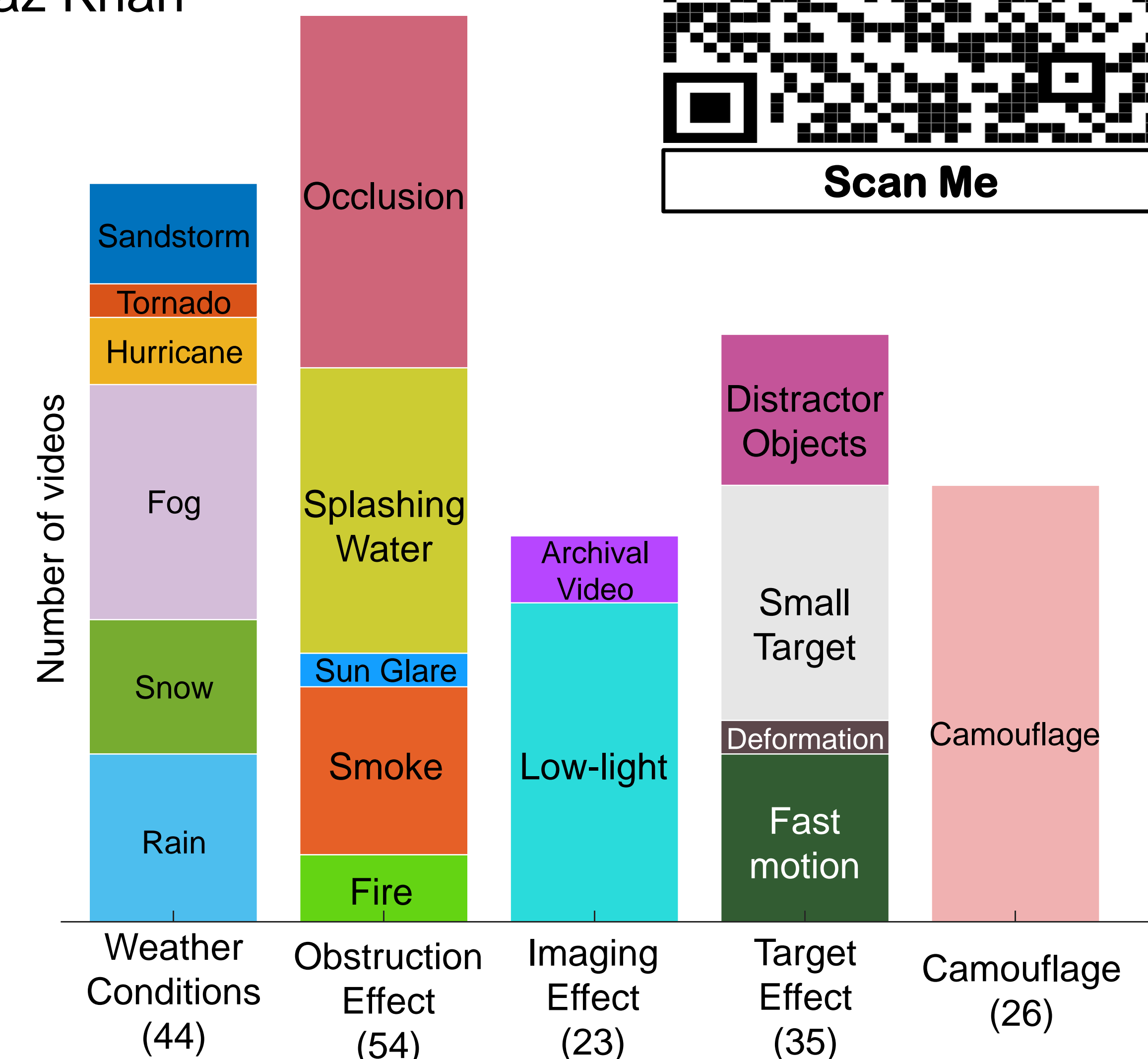
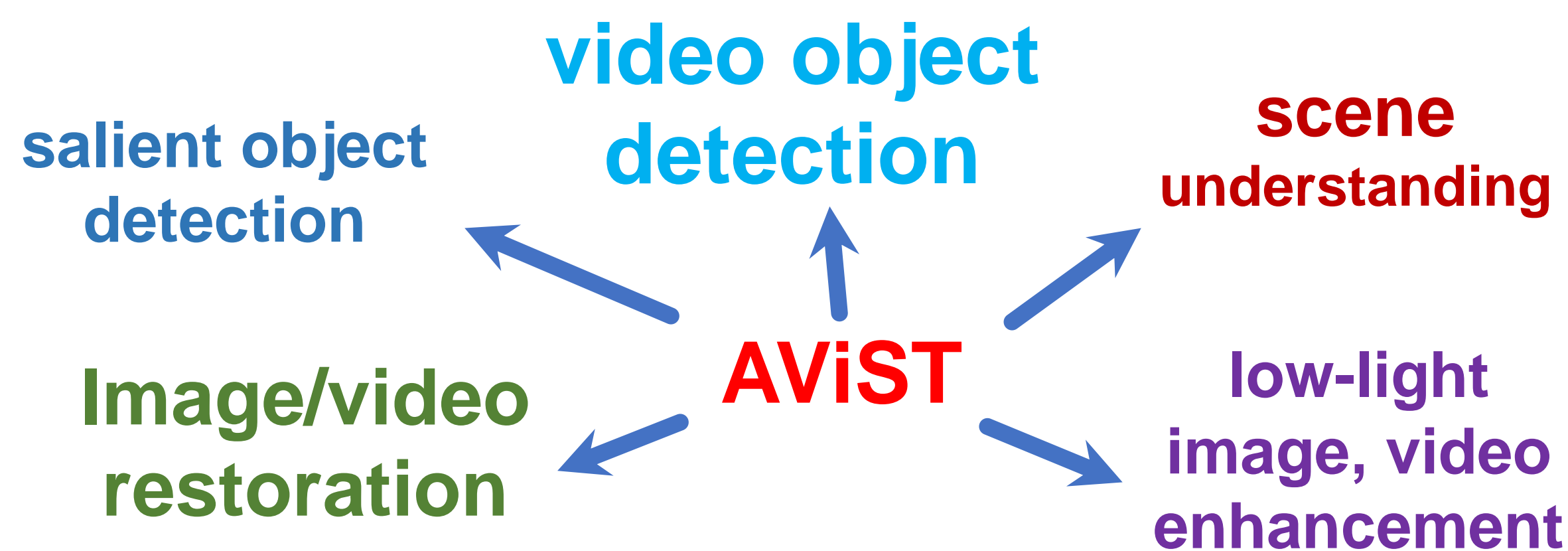
- Categorized into **FIVE** attributes:
  - Weather Conditions (44 Videos)**
  - Obstruction Effects (54 Videos)**
  - Imaging Effects (23 Videos)**
  - Target Effects (35 Videos)**
  - Camouflage (26 Videos)**

- AVisT covers **18 diverse scenarios** as shown in below:



## Future Scope

Apart from the **object tracking**, **AVisT** can be used for:



The trackers belong to different tracking paradigms: SiamRPN++ (Siamese), KeepTrack (Discriminative Classifier), STARK-ST-101 and MixFormerL-22k (Transformer).