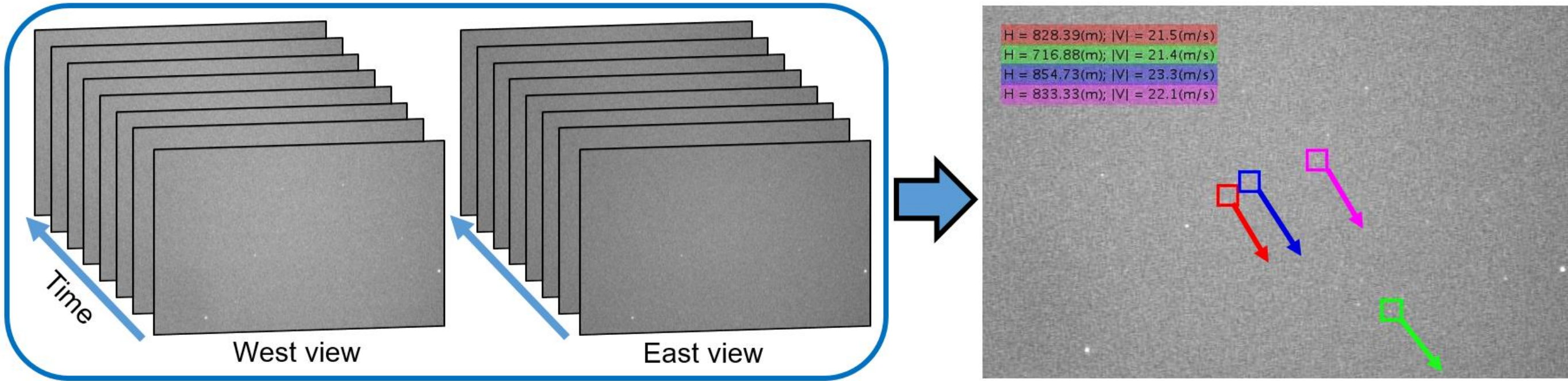


Goal

Automatic bird detection from stereo sequences

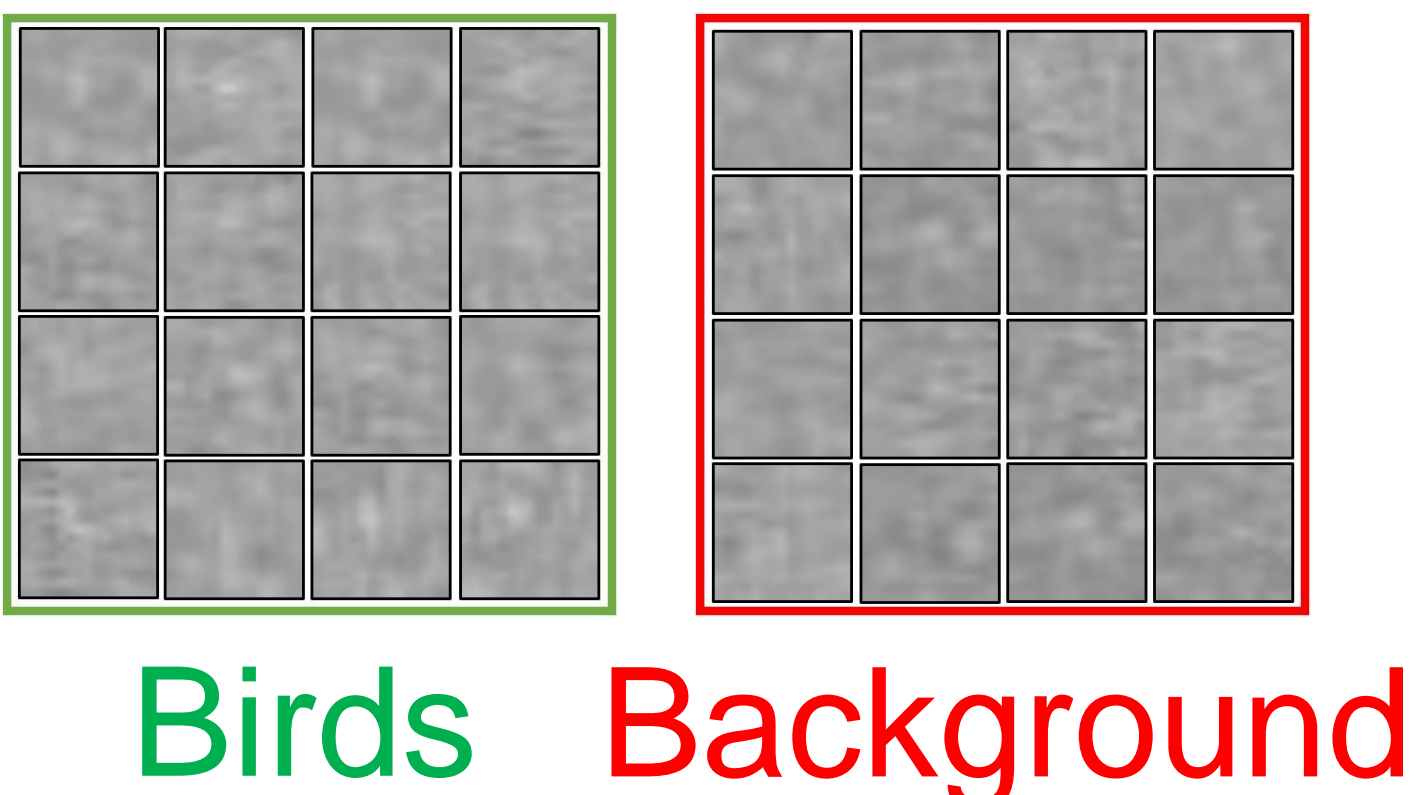


Existing Solutions

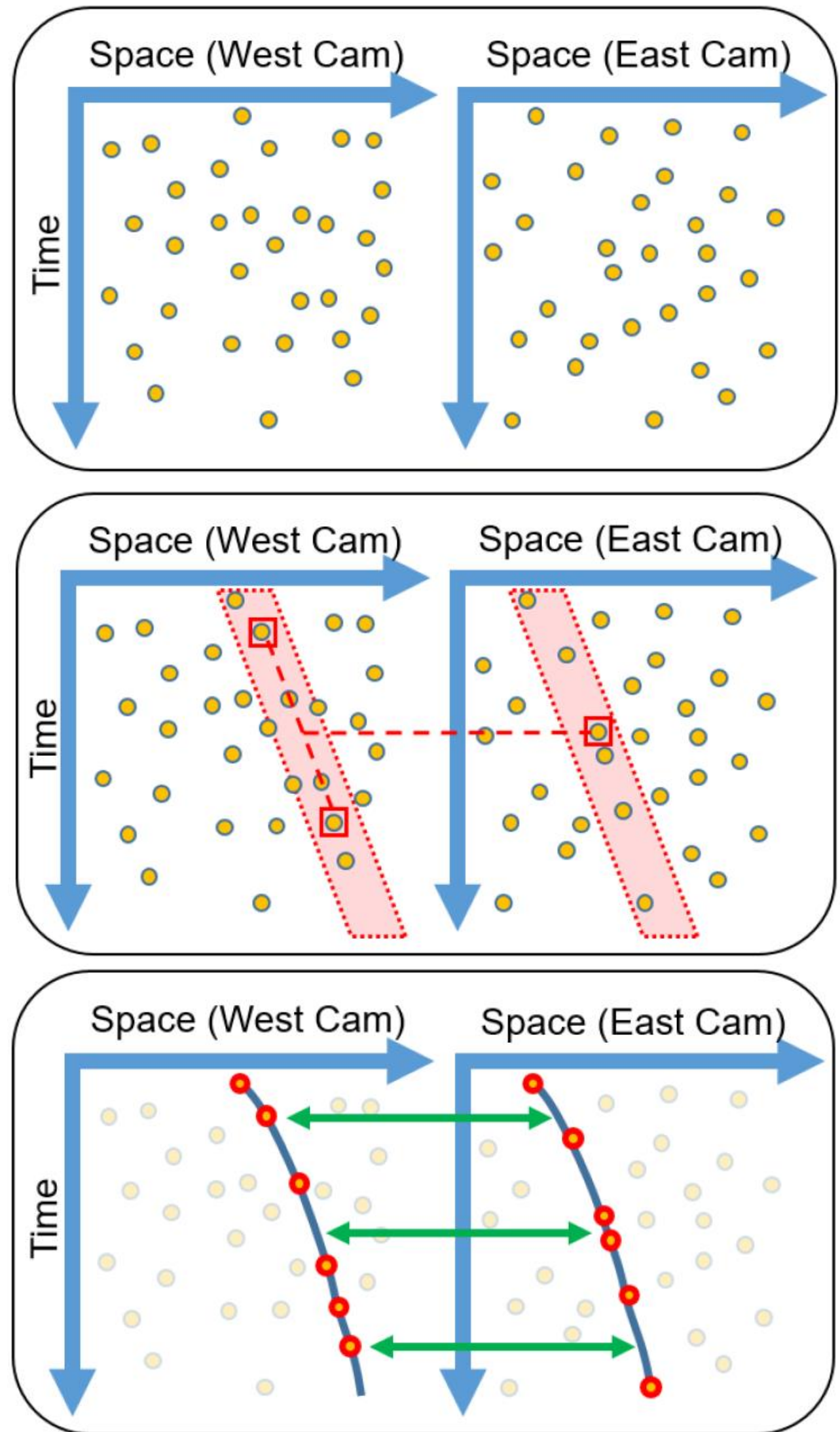
- Satellite tracking → expensive
- Weather radar → indirect/inaccurate
- Moon watching → labor-intensive

Challenges

- Small targets
- Unknown trajectory
- Very low SNR



Method



Foreground detection

- Background subtraction

Geometry verification

- RANSAC with stereo vision constraints

Trajectory verification

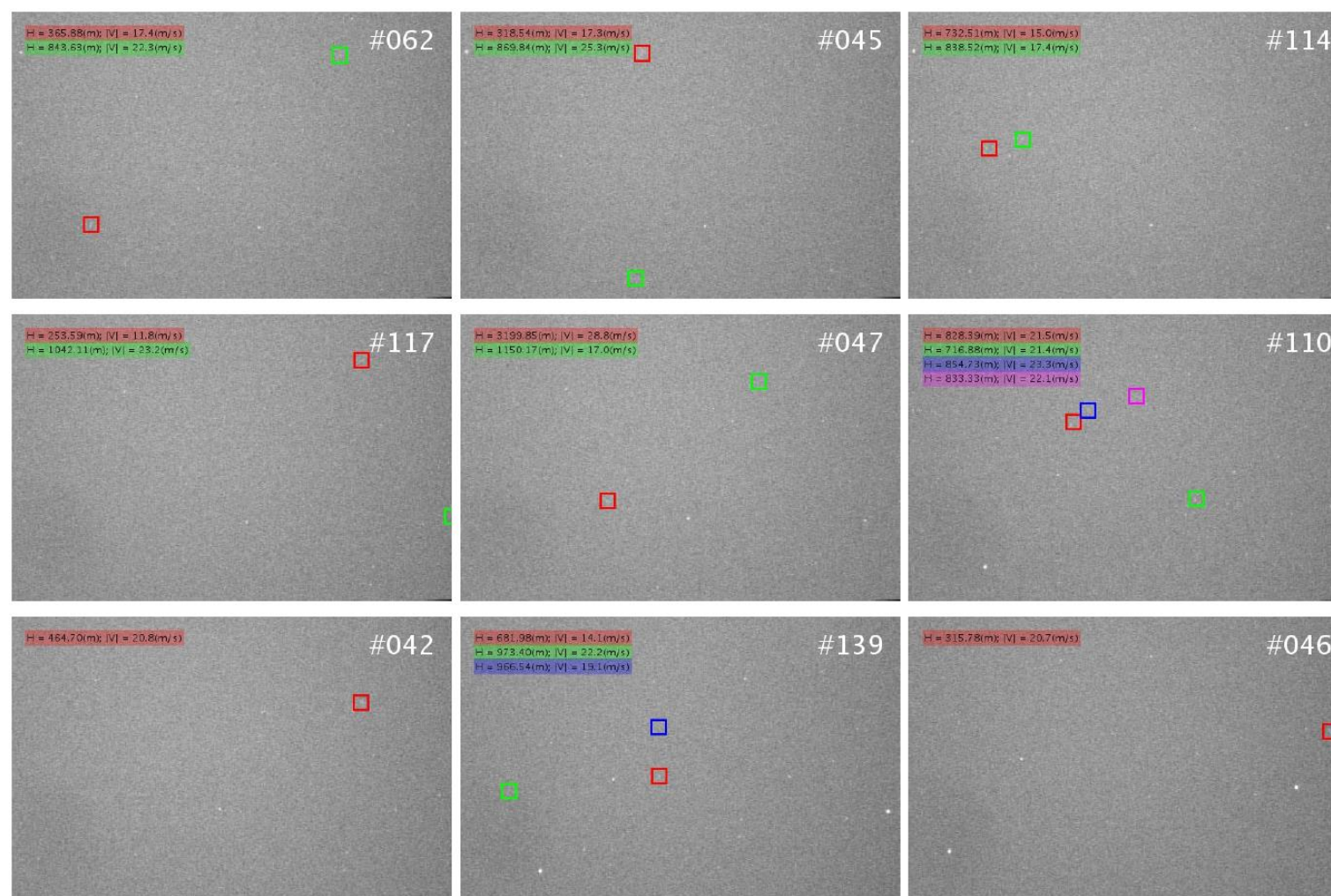
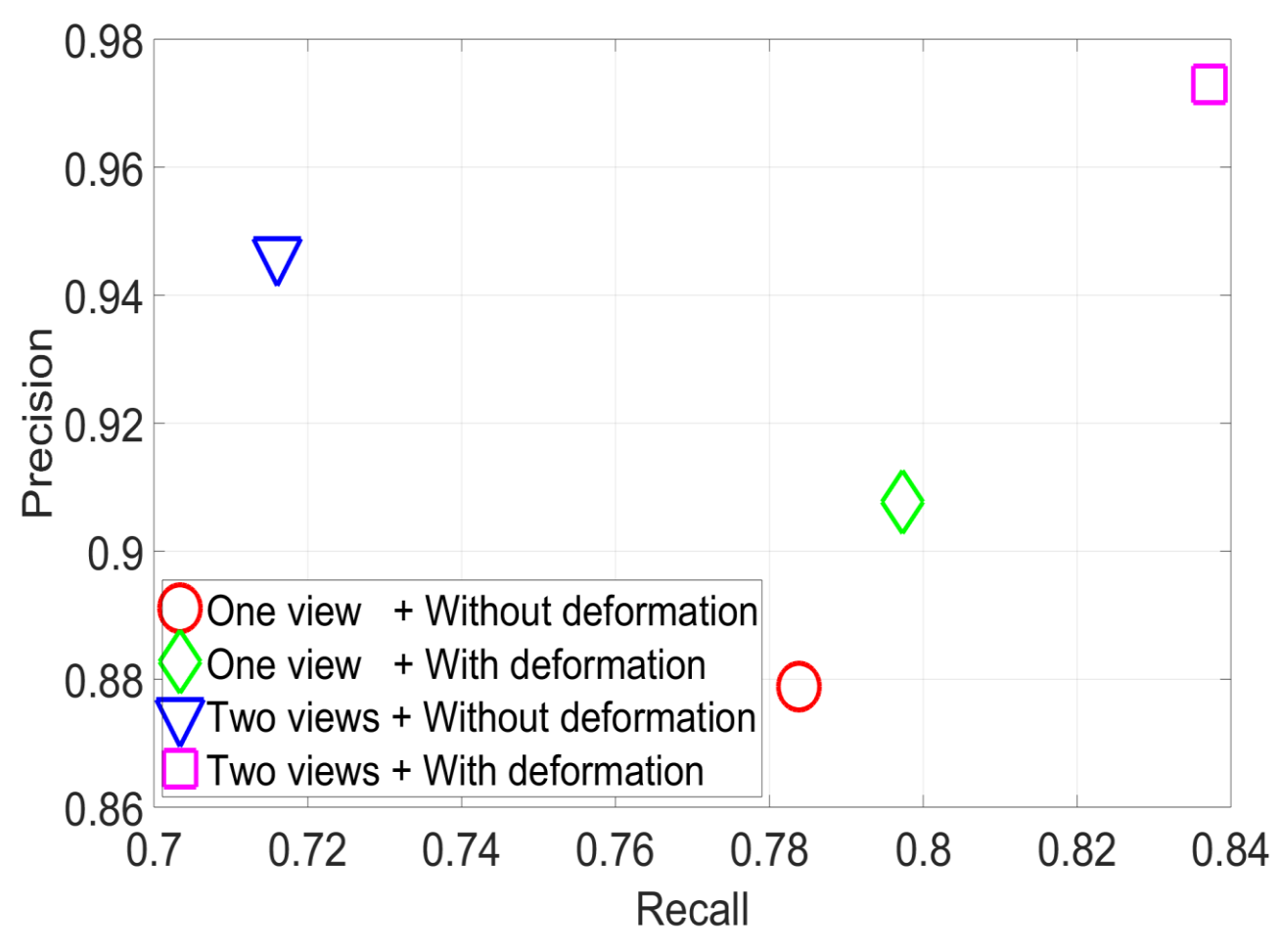
- Integrating along hypothesized bird trajectory
- Handling uncertainty using generalized distance transform

Experimental Results

Data collection

- Near IR VGA momo camera x2
- Two meters baseline
- Spring migration
- 20 mins

Evaluation



Statistics

