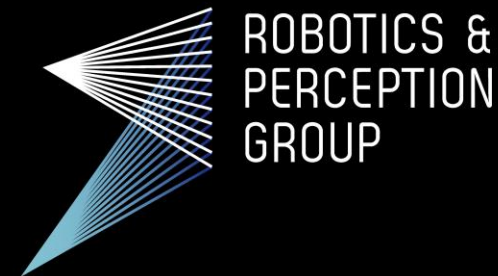# Reinforcement Learning Meets Visual Odometry

Nico Messikommer*, Giovanni Cioffi*, Mathias Gehrig, and Davide Scaramuzza

*equal contributions

University of Zurich UZH

ROBOTICS & PERCEPTION GROUP

SVO with RL (**Ours**)

SVO with heuristic

kTracking   Reward: 0.0013

kTracking   Reward: 0.0017

KF: 0   GridSize: 20   Last KF: 1

KF: 1.0   GridSize: 20.0   Last KF: 0

Lost Track

SVO with RL (**Ours**)

SVO with heuristic

kTracking   Reward: −0.0043

kTracking   Reward: −0.0034
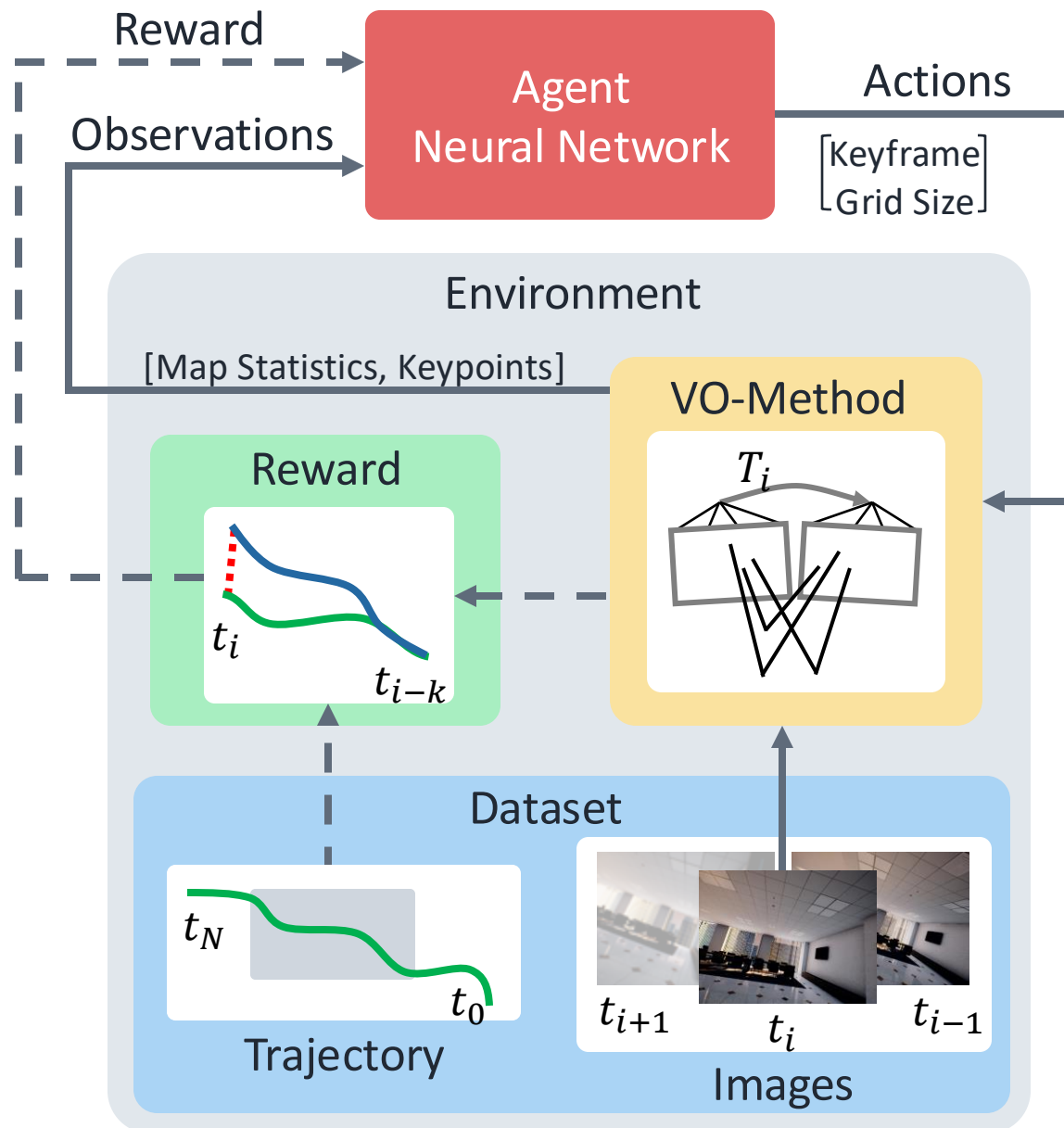
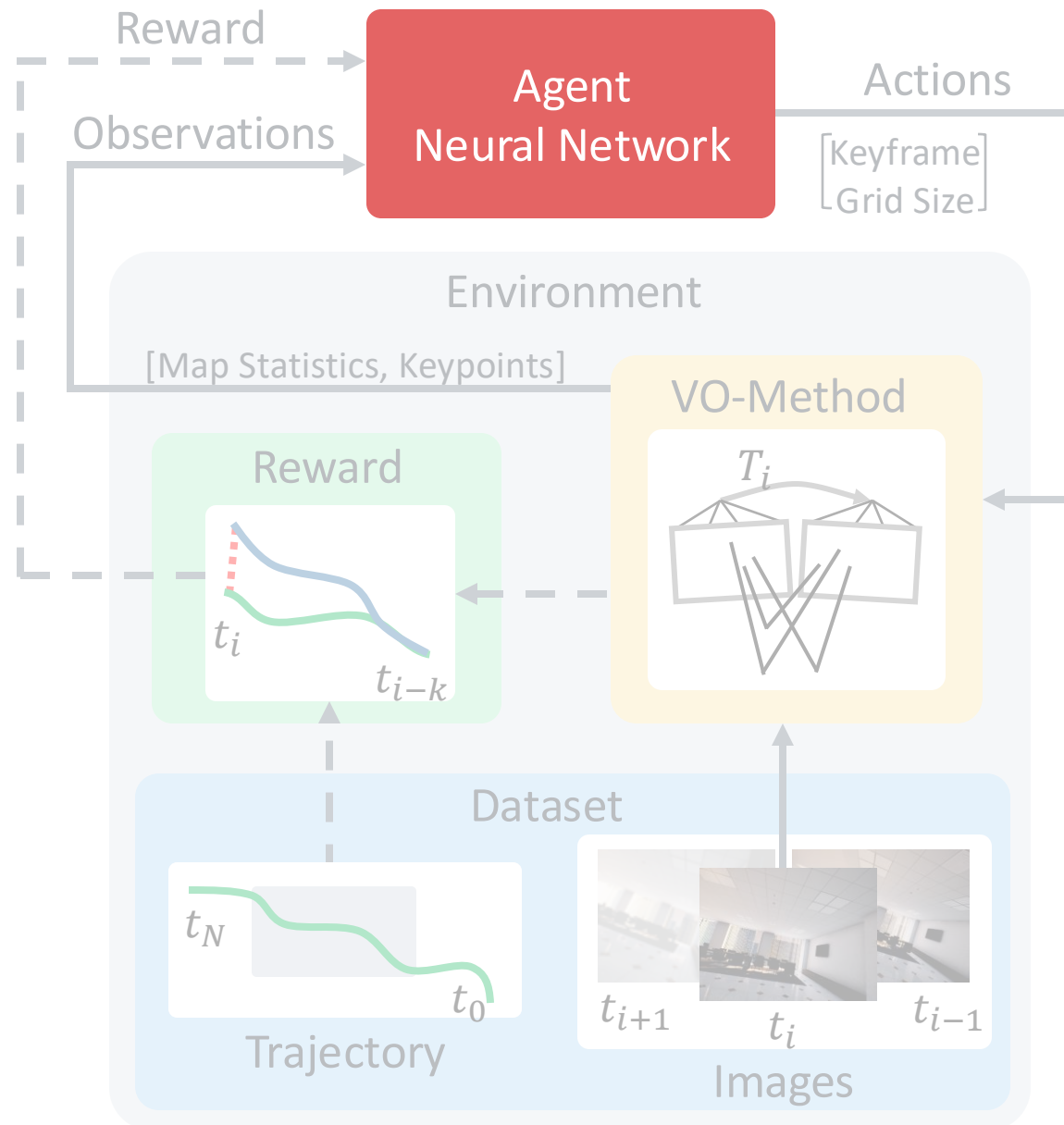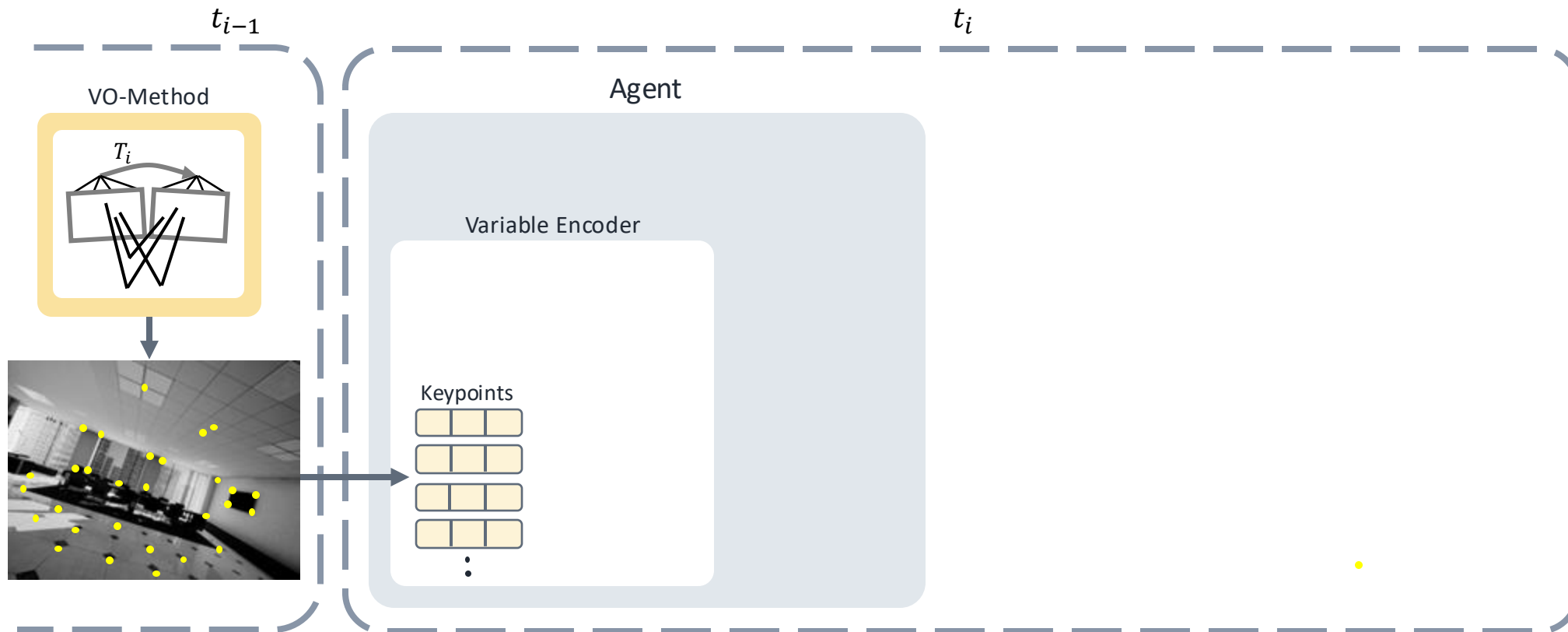KF: 1   GridSize: 20   Last KF: 0

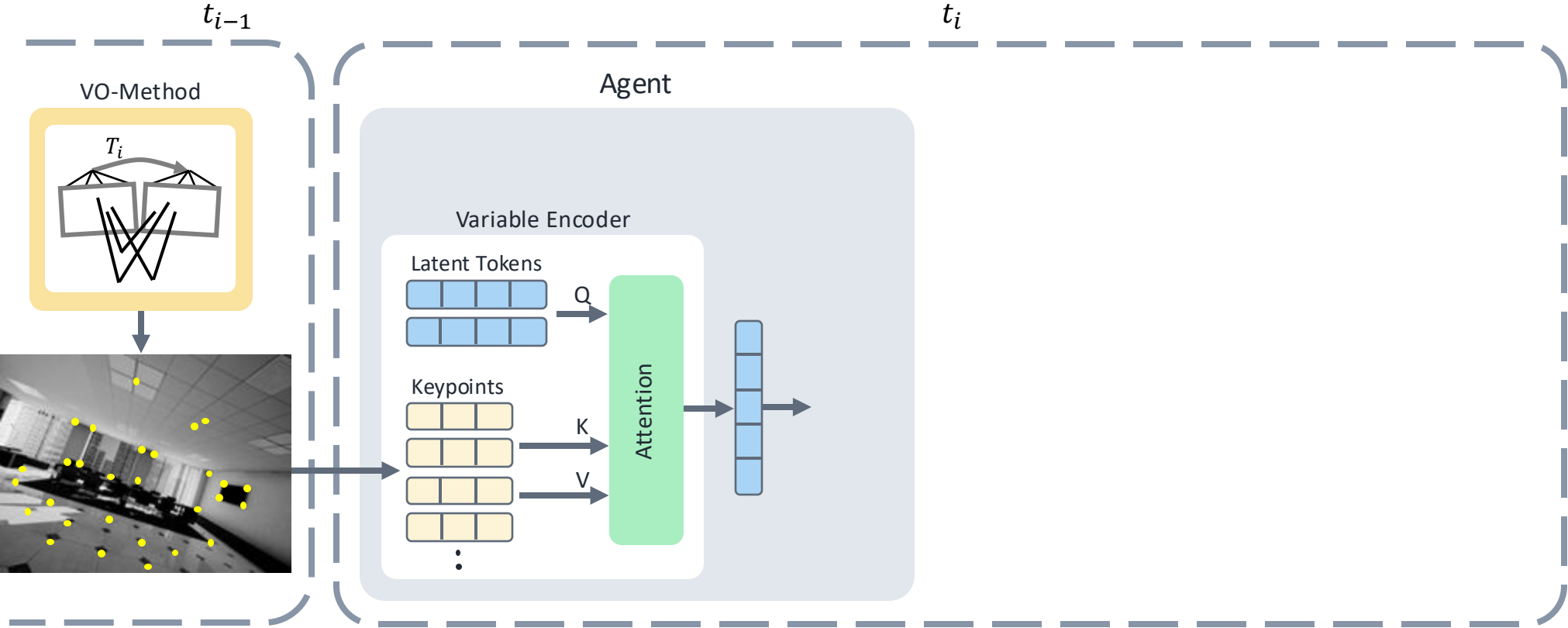KF: 0.0   GridSize: 20.0   Last KF: 1

Lost Track

Method

Method

Method

Agent
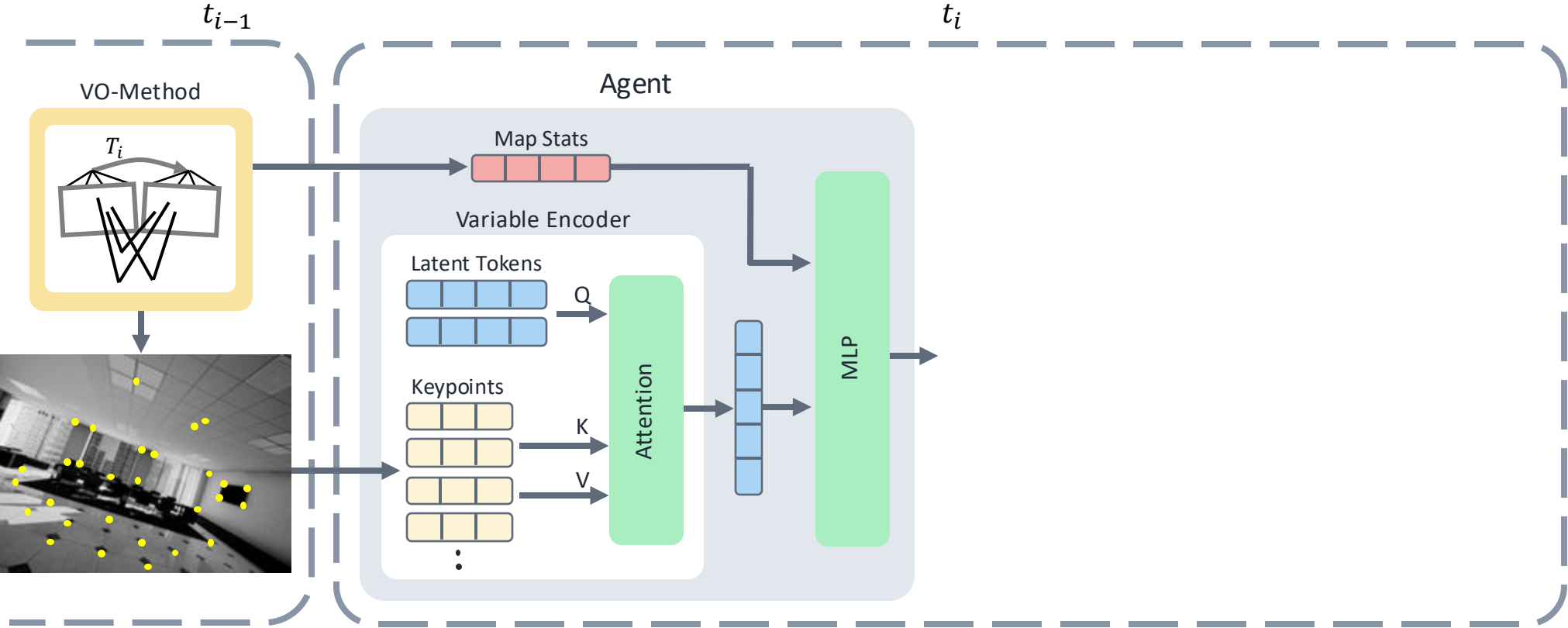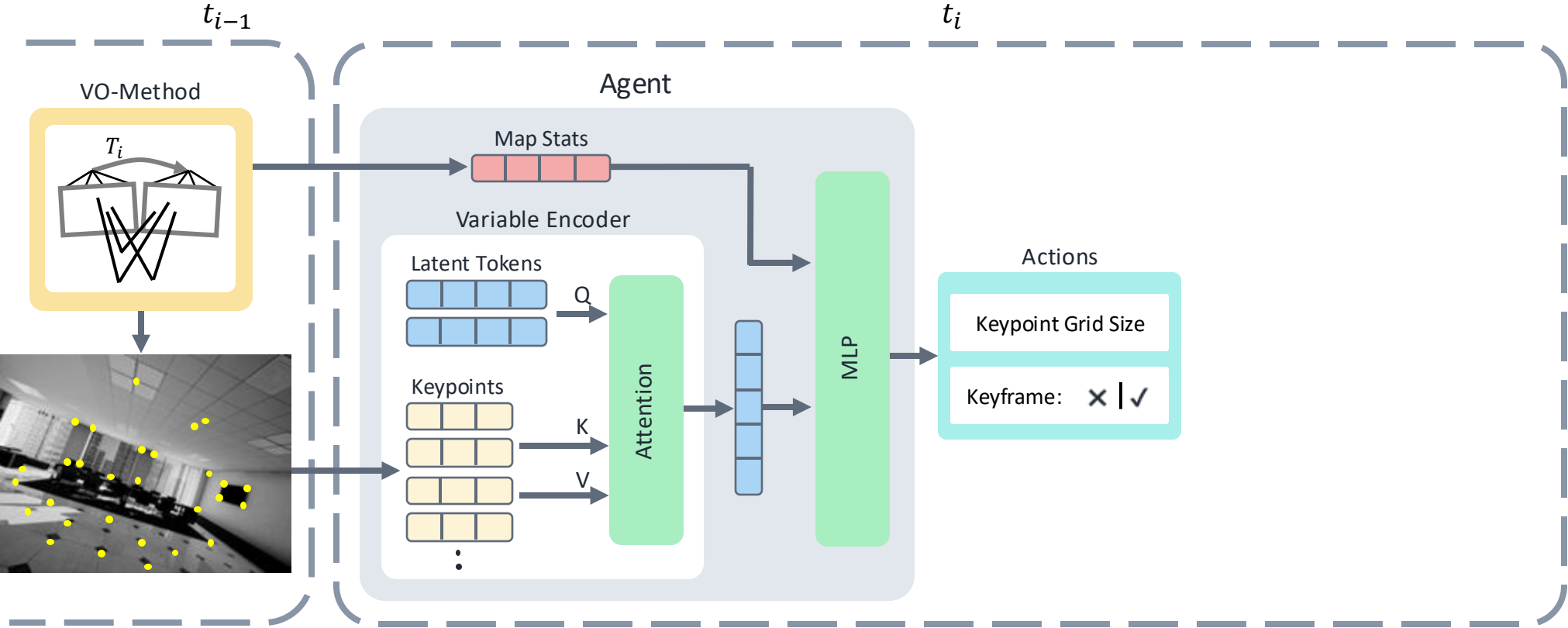
Agent
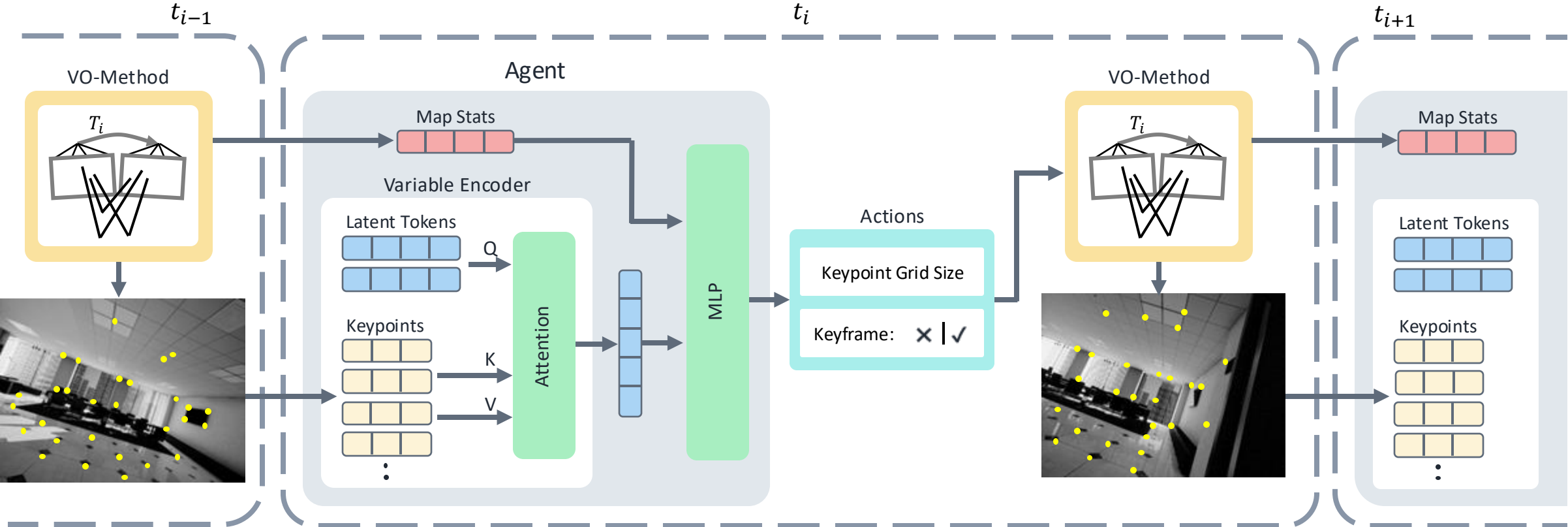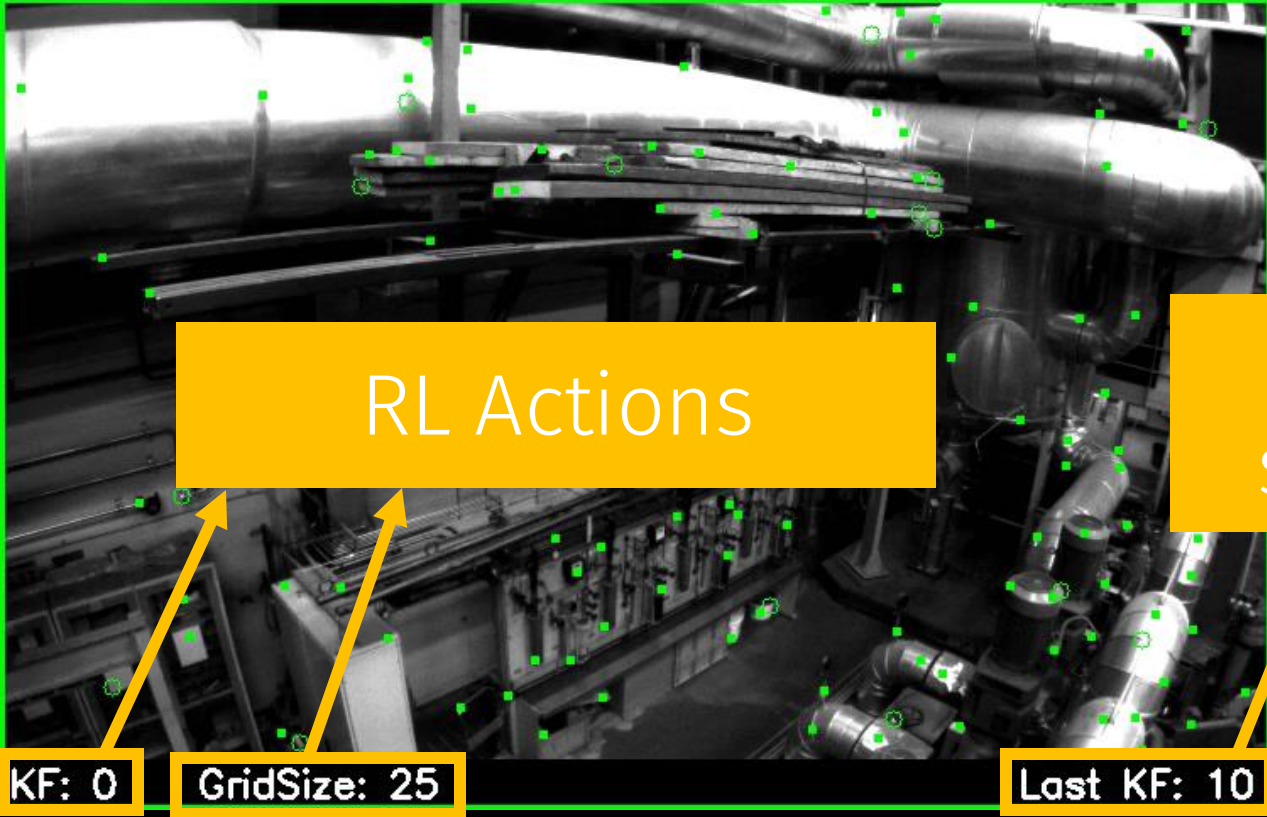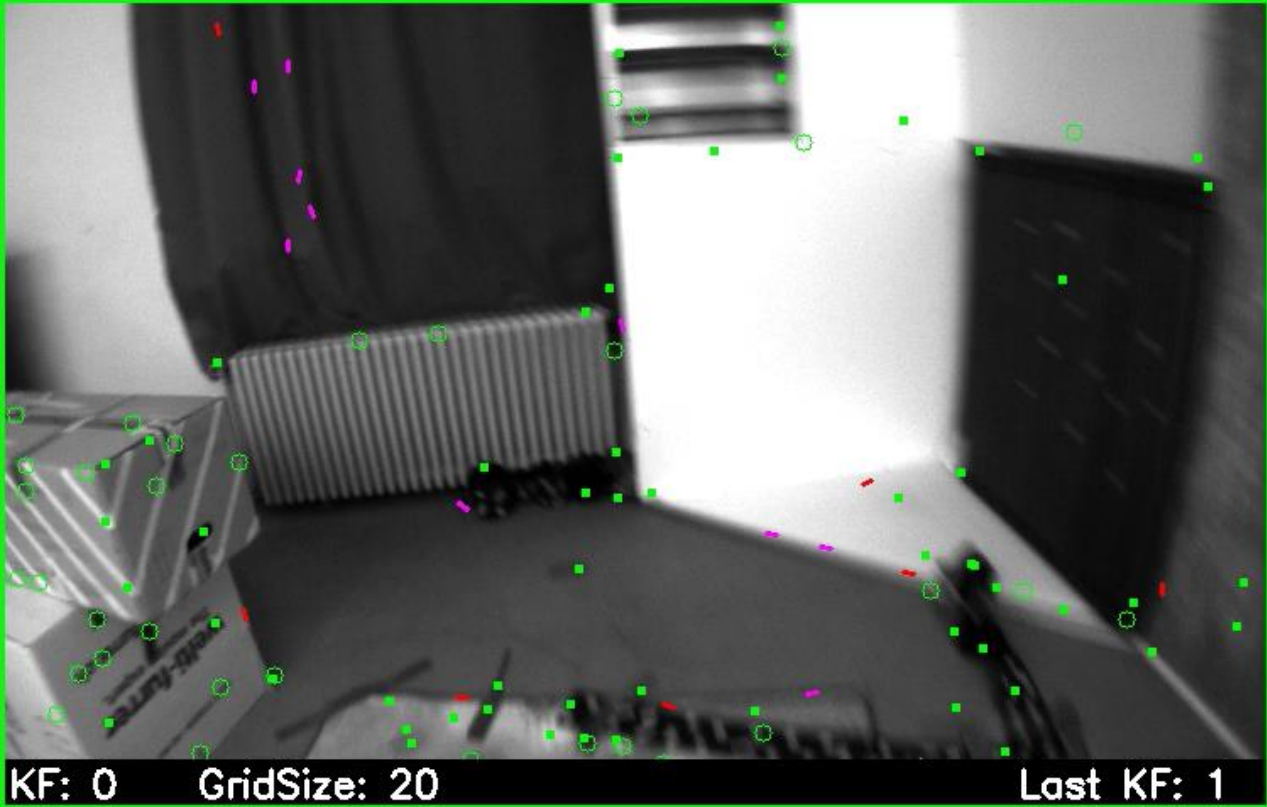
Agent
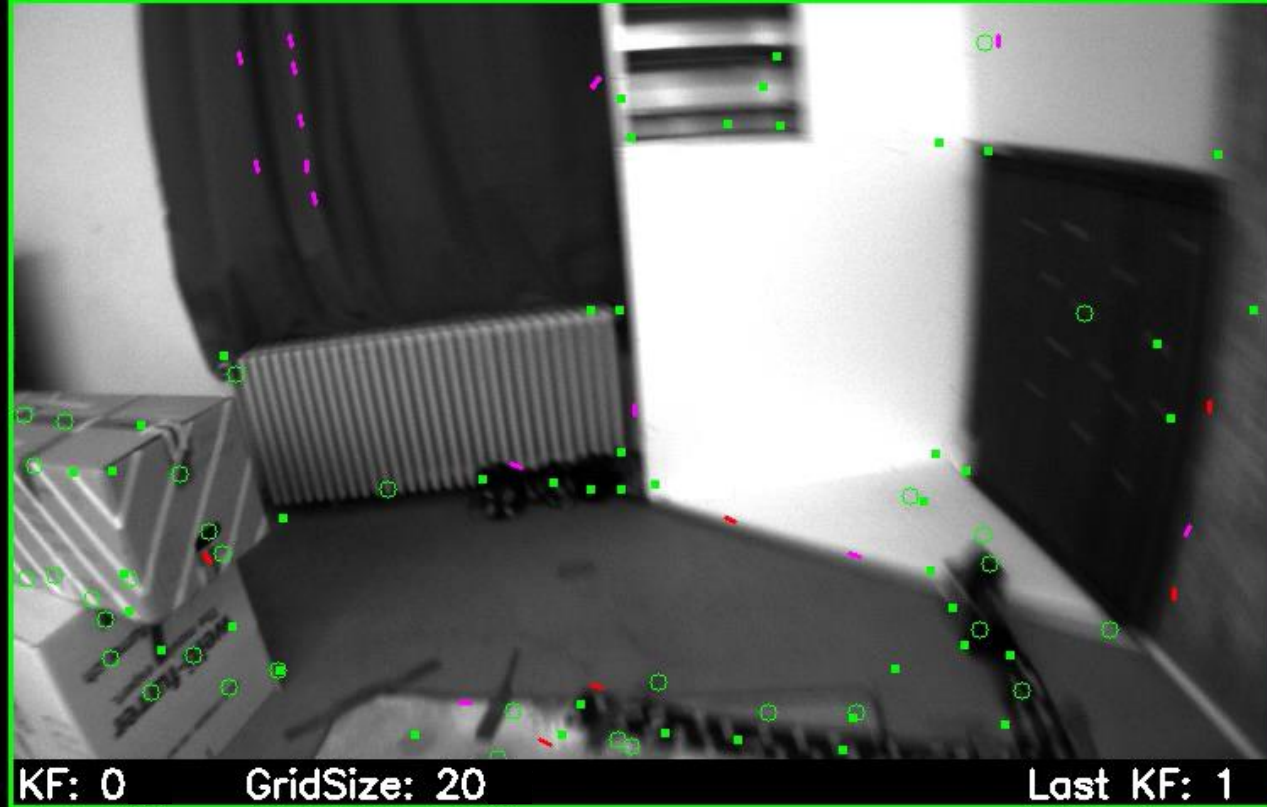
Agent

Agent

EuRoC MH01

SVO with RL

SVO with heuristic

RL Actions

Num since

Heuristic Decisions

KF: 0

GridSize: 25

Last KF: 10

KF: 0

GridSize: 20

Last KF: 4

EuRoC V203

SVO with RL

SVO with heuristic

TUM-RGBD teddy

SVO with RL

SVO with heuristic

KF: 1   GridSize: 25   Last KF: 0
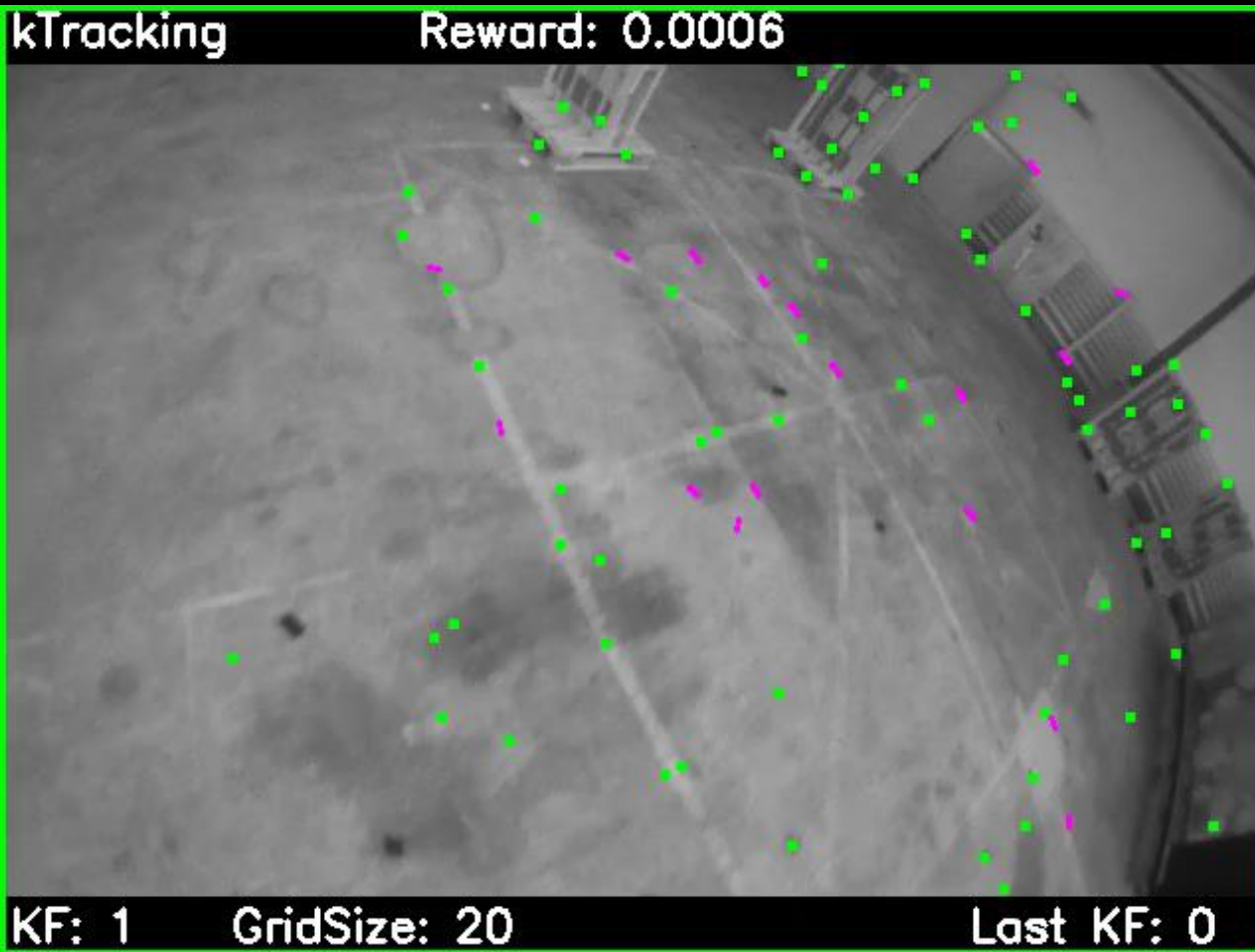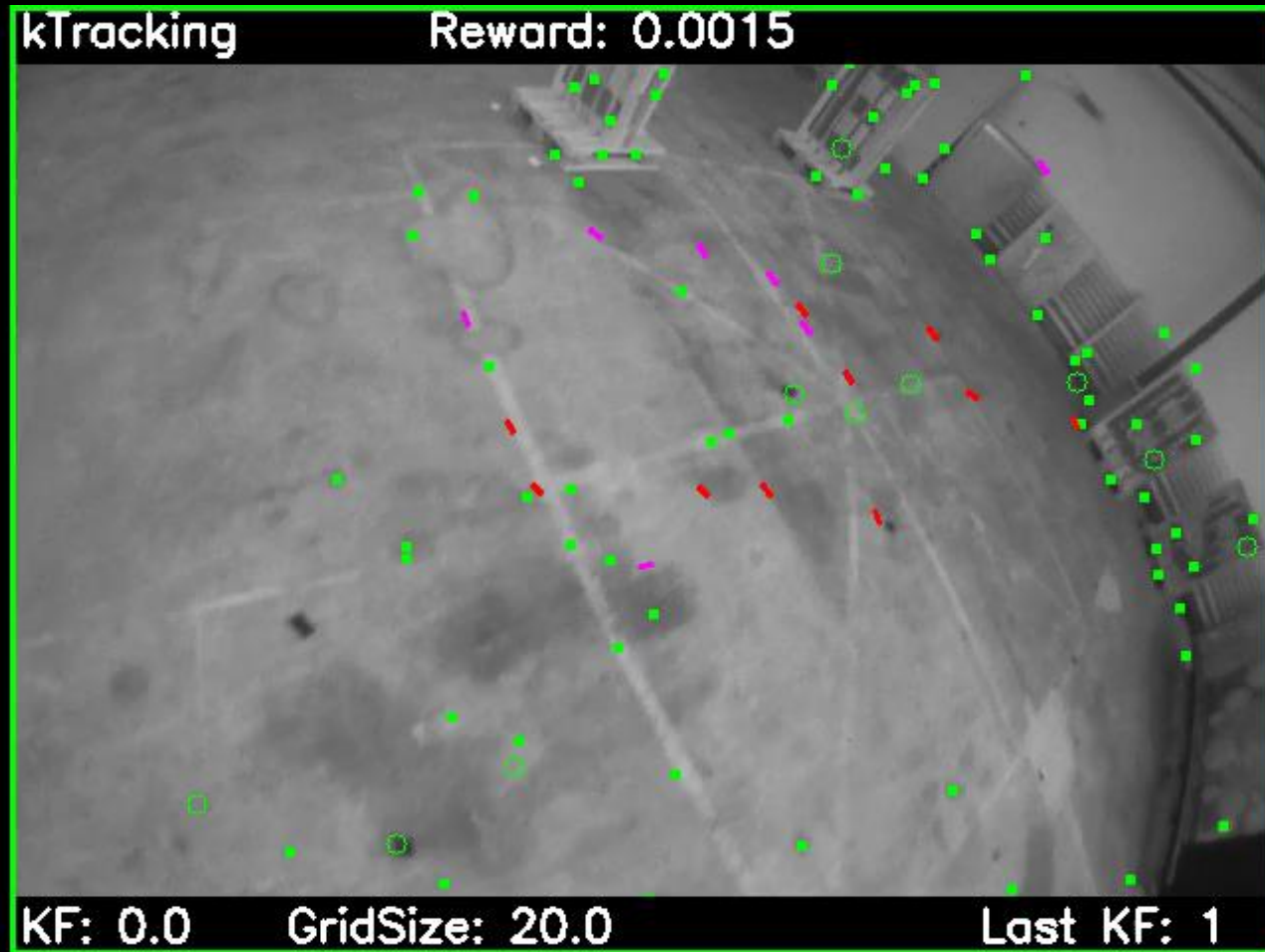
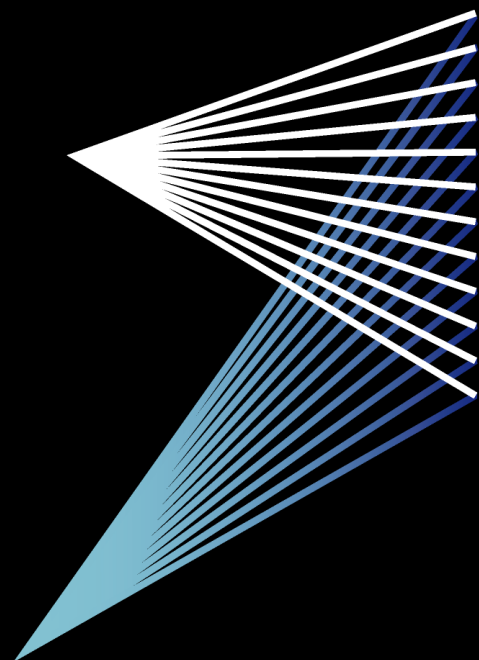KF: 0   GridSize: 20   Last KF: 8

SVO with RL

SVO with heuristic

Lost Track

Source Code: https://github.com/uzh-rpg/rl_vo

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