# CAREER: Establishing Correctness of Learning-Enabled Autonomous Systems with Conflicting Requirements

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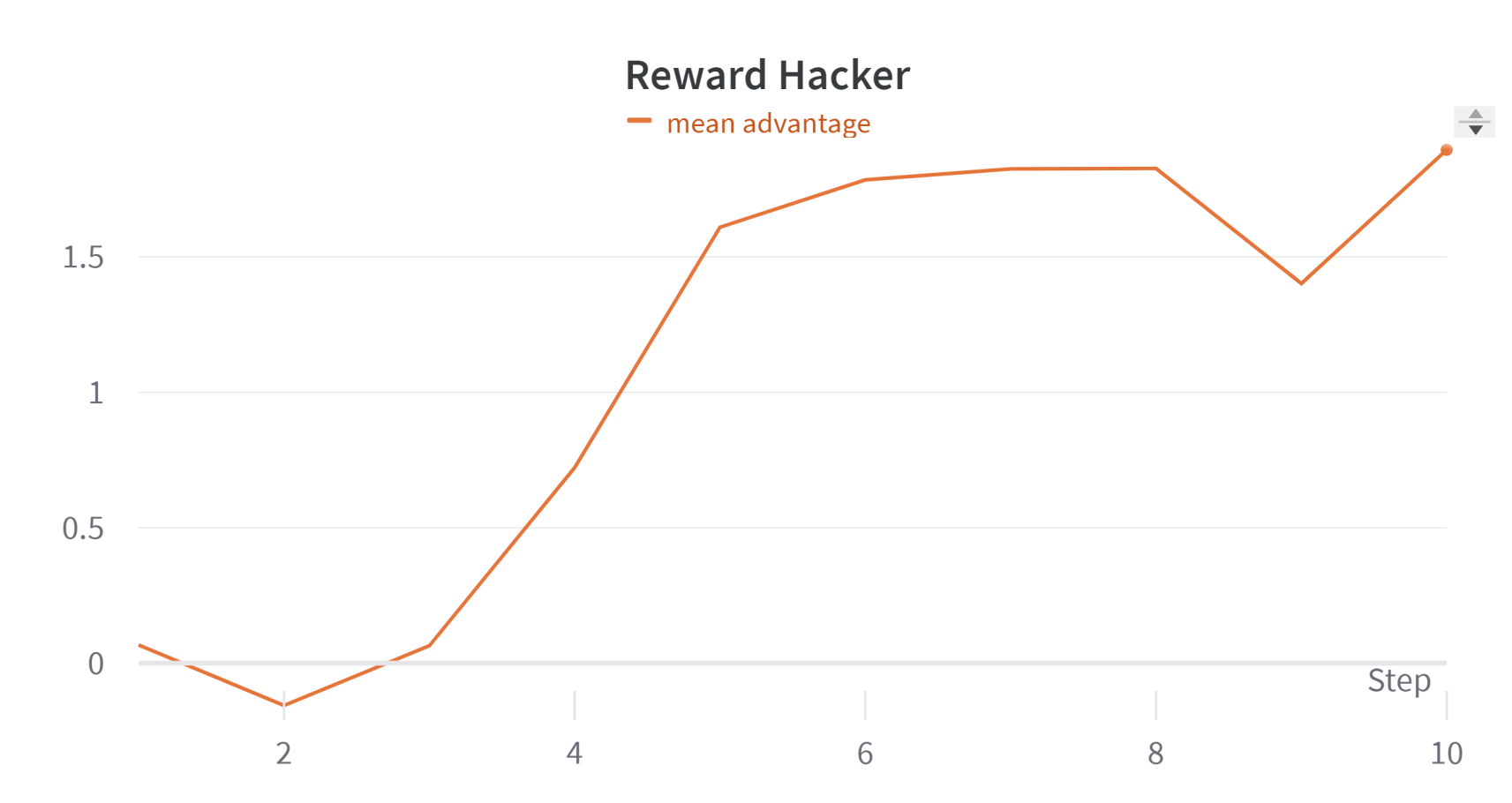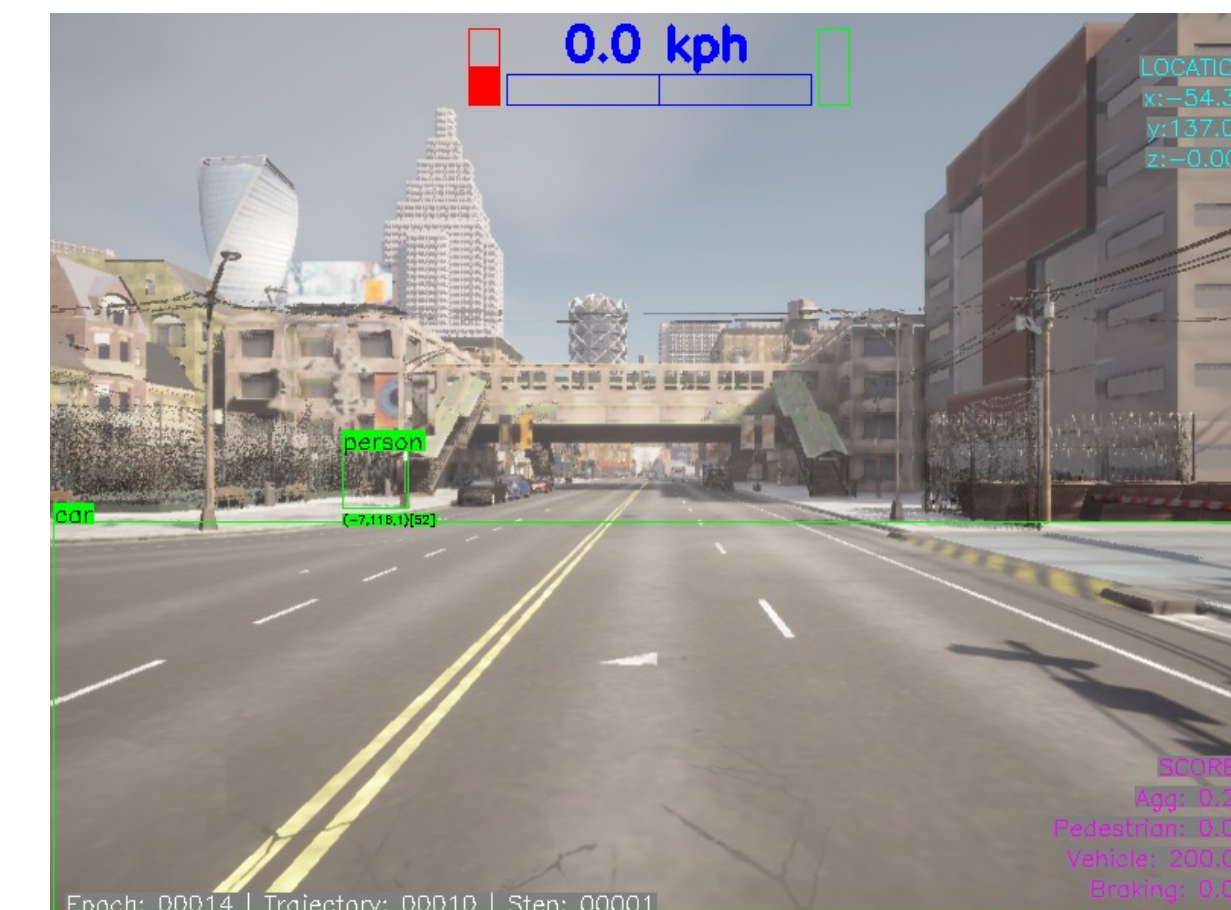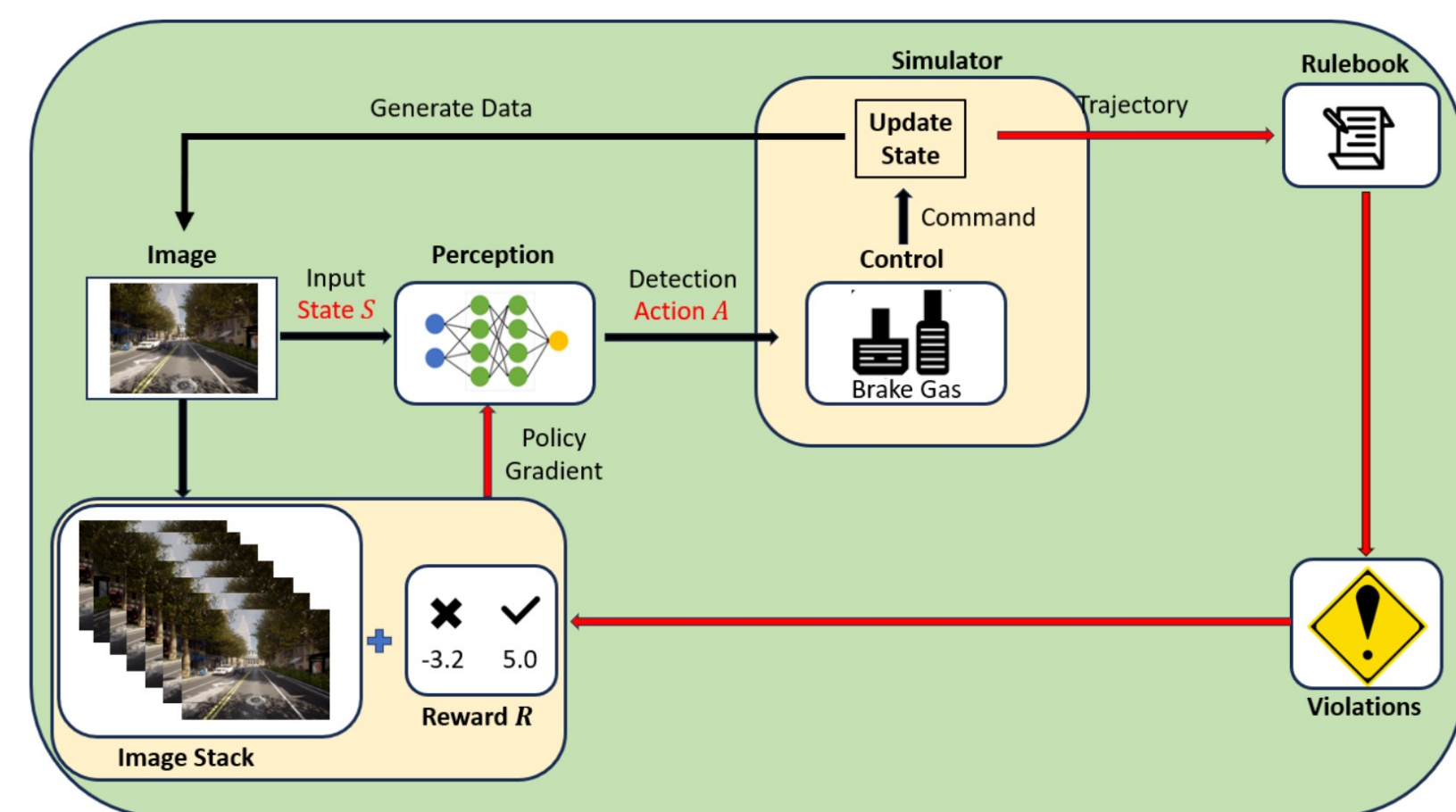https://tichakorn.dev/project/correctness-autonomy/

## Challenges

Interpretation of correctness, control design, and system-level analysis for autonomous systems that

- include learning-based components,
- operate in uncertain environments, and
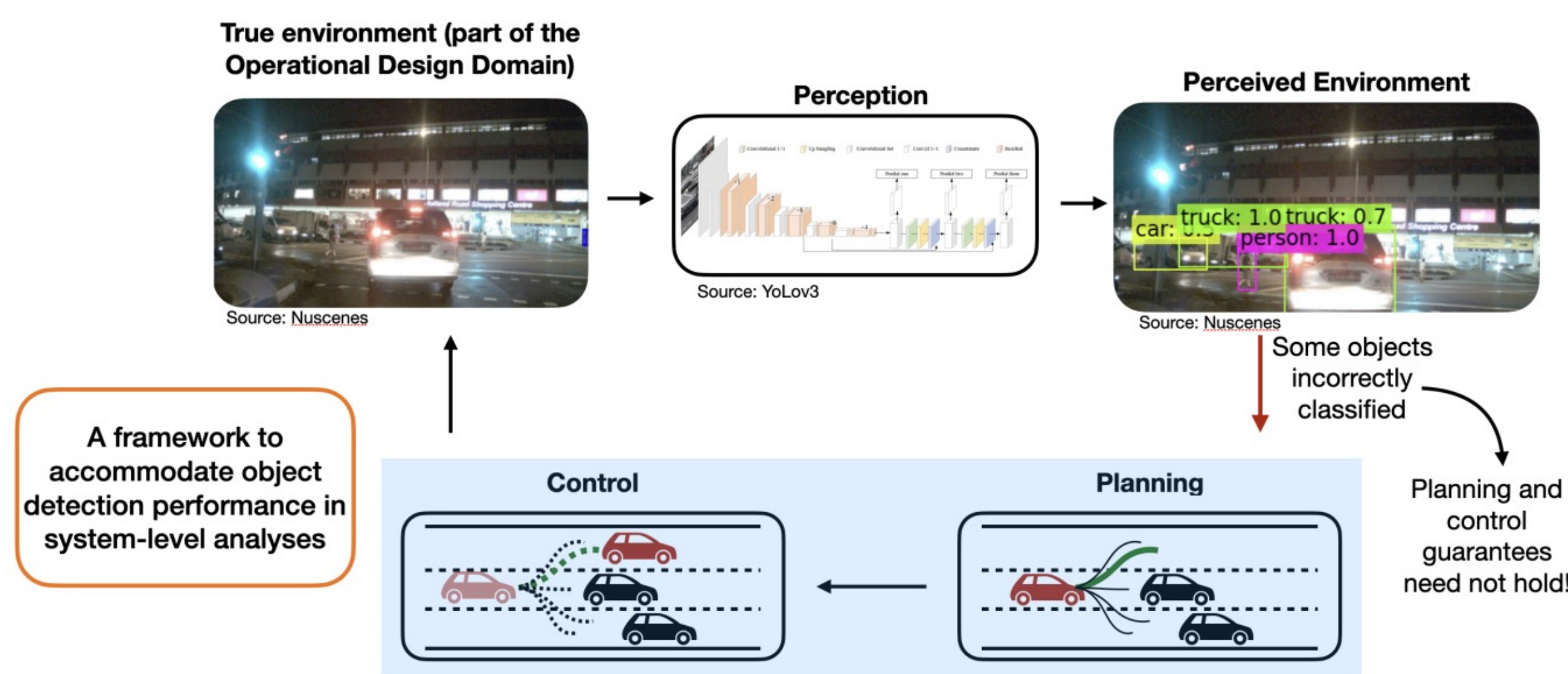- are subject to conflicting requirements with partially established priorities

## Scientific Impact

- Enable practical applications of formal methods throughout the development process of autonomous systems
- Can be generalized to other safety-critical CPS

## Broader Impact

- Improve the safety and mitigate the risk of operating autonomous systems in the society
- Involve 3 PhD, 1 master, and 4 undergrad students
- Various outreach activities with hands-on demonstrations to broaden participation in computer science and autonomous systems

## Solution

Training a perception model of an autonomous system with system-level safety objectives as specified by a rulebook



Quantitative system-level verification that utilizes statistical analysis of the learning-based components and the environment