

# Model Free Reinforcement Learning

Application to leader follower

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# Outline

- Recap
- Results
- Current Milestone
- Progress Made
- Upcoming Milestones

# Objective

## Objective

Our Goal is to find optimum policy that eliminates the tracking error

$$u = [v, \gamma]$$

(1)

$$\mathbf{e}_k = \begin{bmatrix} x_k^{[\ell]} - x_k - d \cos \theta'_k \\ y_k^{[\ell]} - y_k - d \sin \theta'_k \\ \theta'_k - \theta_k \end{bmatrix} \quad (2)$$

# Problem Setup

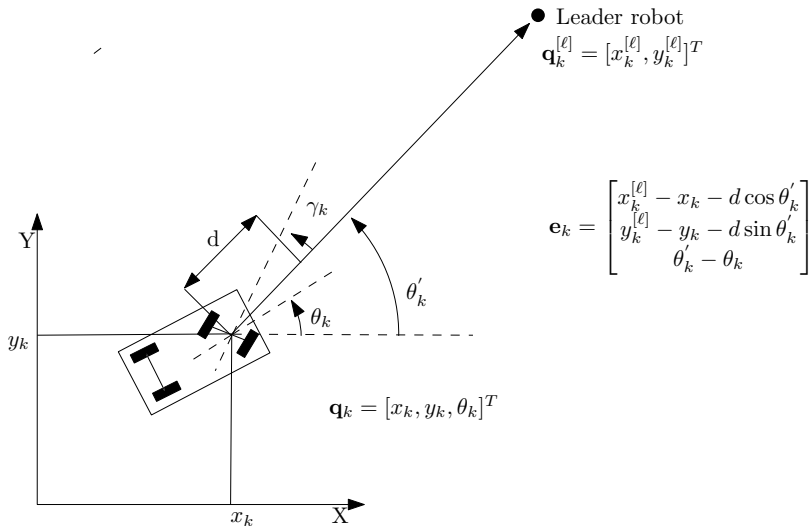


Figure: Problem Setup

# Random Path

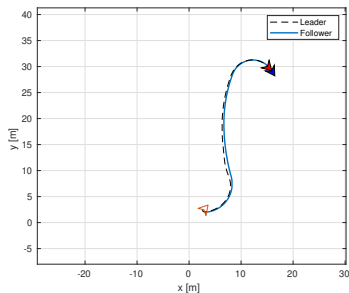


Figure: trajectory

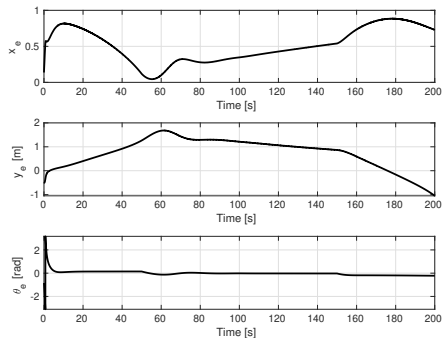


Figure: Error

## Objective

Simulate the EDU-Mod in V-rep simulation platform.

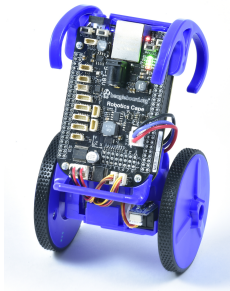


Figure: EduMip robot

# Progress

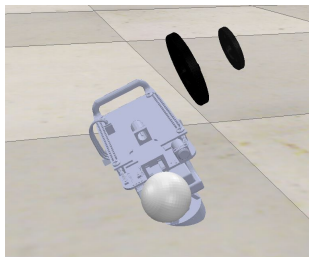


Figure: Failed Model

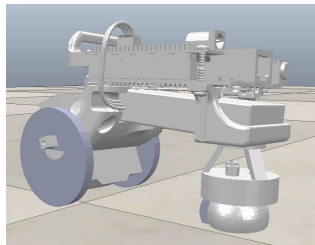


Figure: Corrected Model

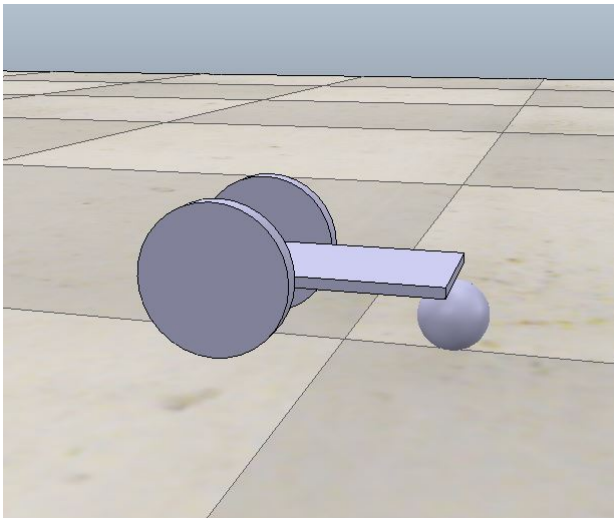


Figure: Edu Mip Vrep model



# Upcoming Milestones

## Objective

Edu Mip visualization and integration with Matlab.

## Objective

Simulate the Model Free Reinforcement Learning Algorithm on Vrep Platform.

# Questions?