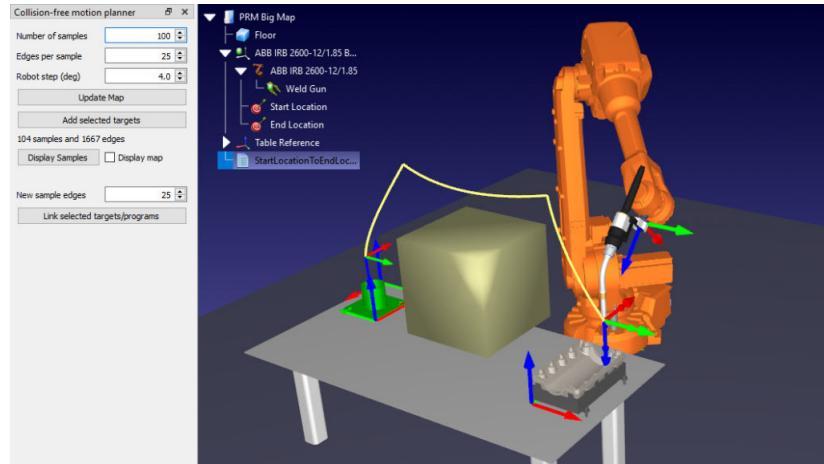


Planning and Navigation

Spring 2021

The Idea is Very Commonplace

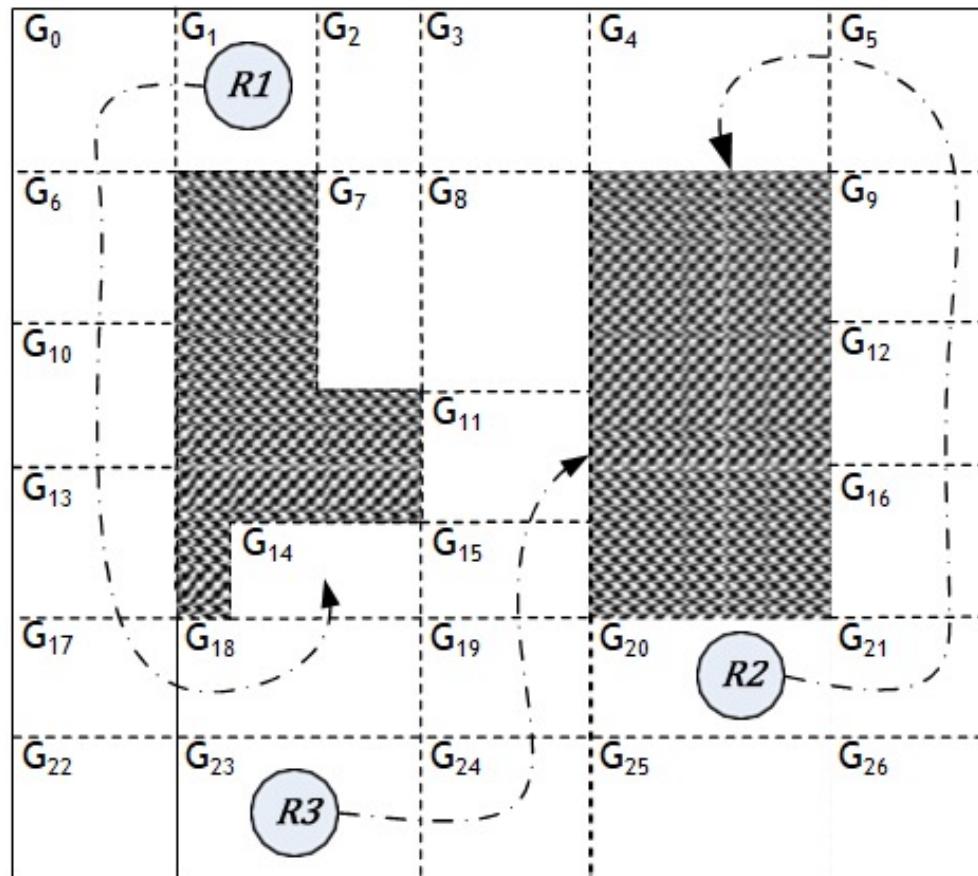
- <https://robodk.com/blog/motion-planning-trend/>
 - Why is it such a big trend??



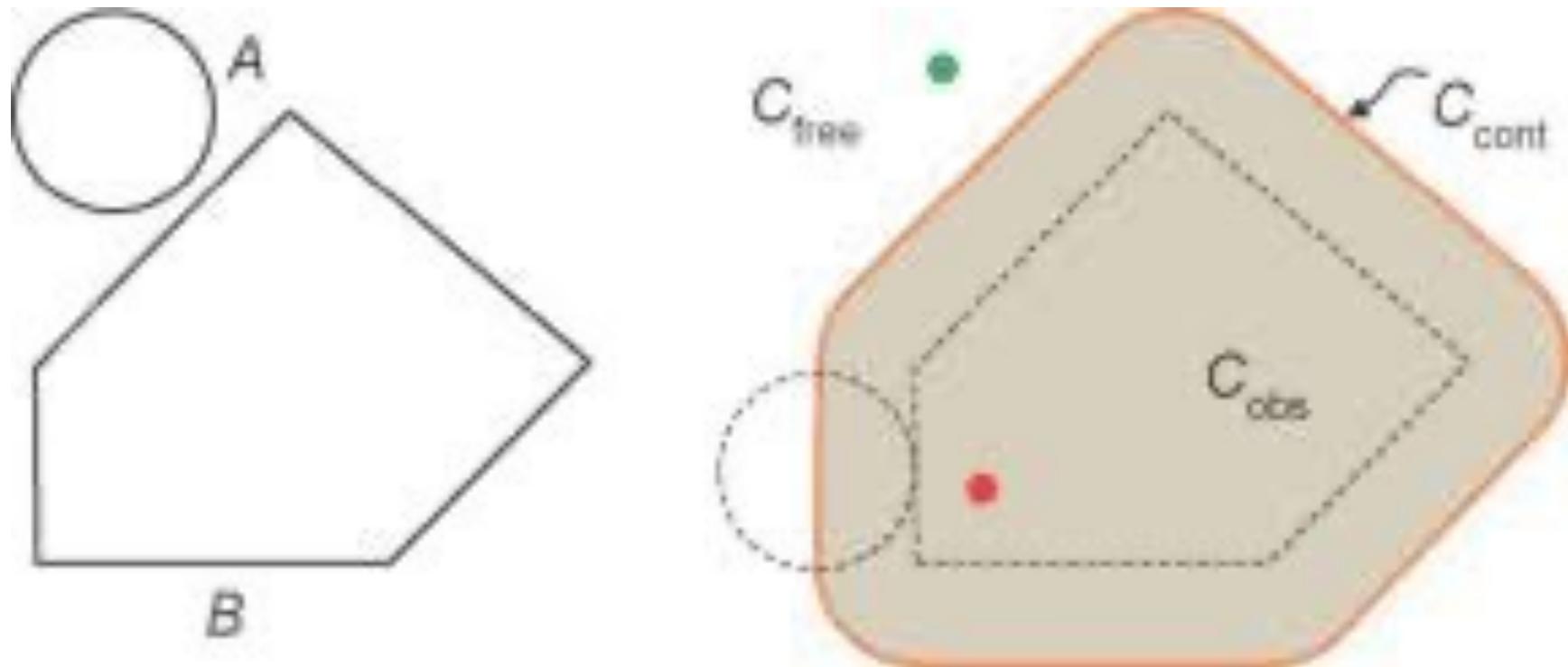
Why is It a Big Trend



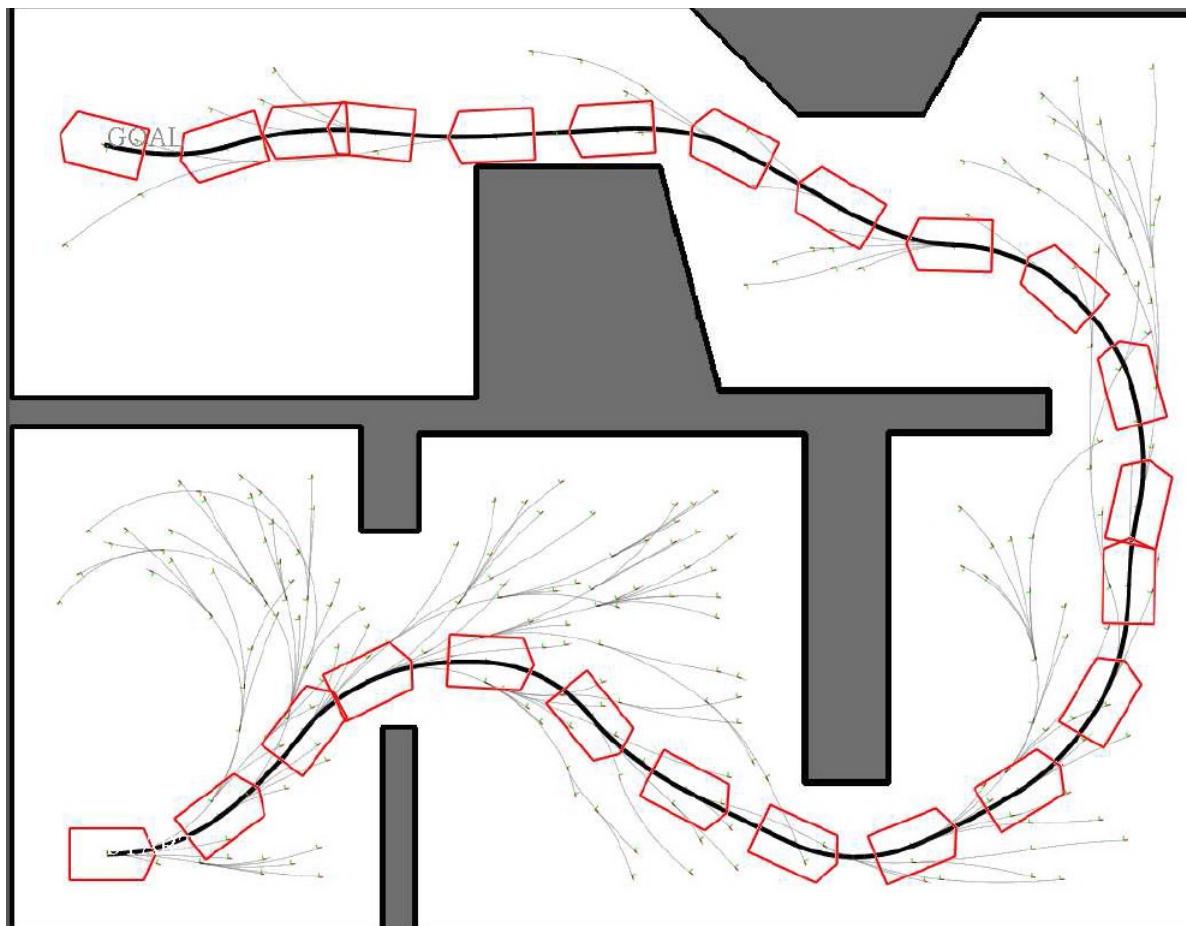
Classical AI Methods: Grid Based Planning



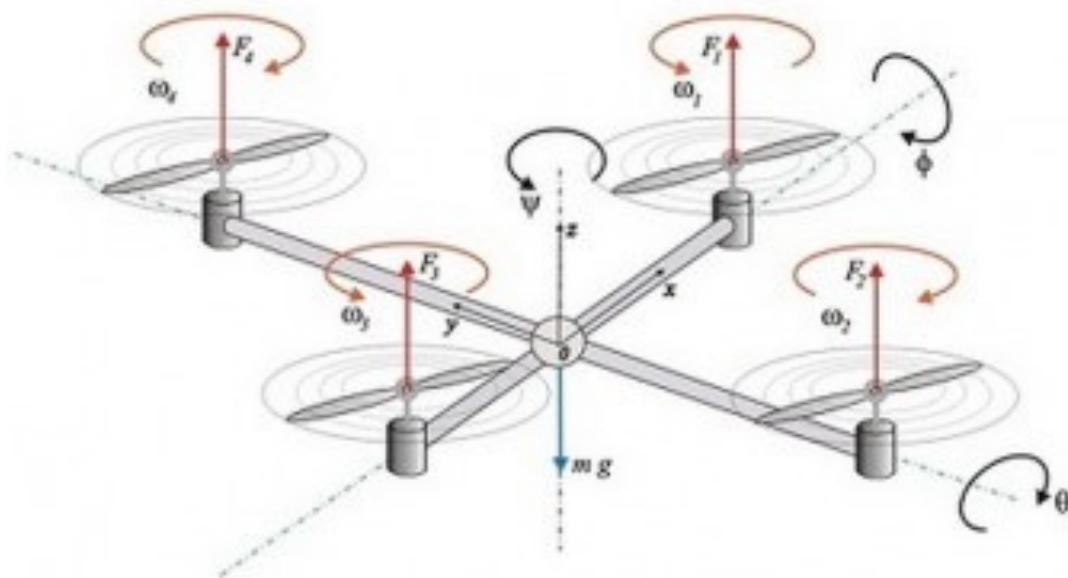
Classical AI Methods: Configuration Space Planning



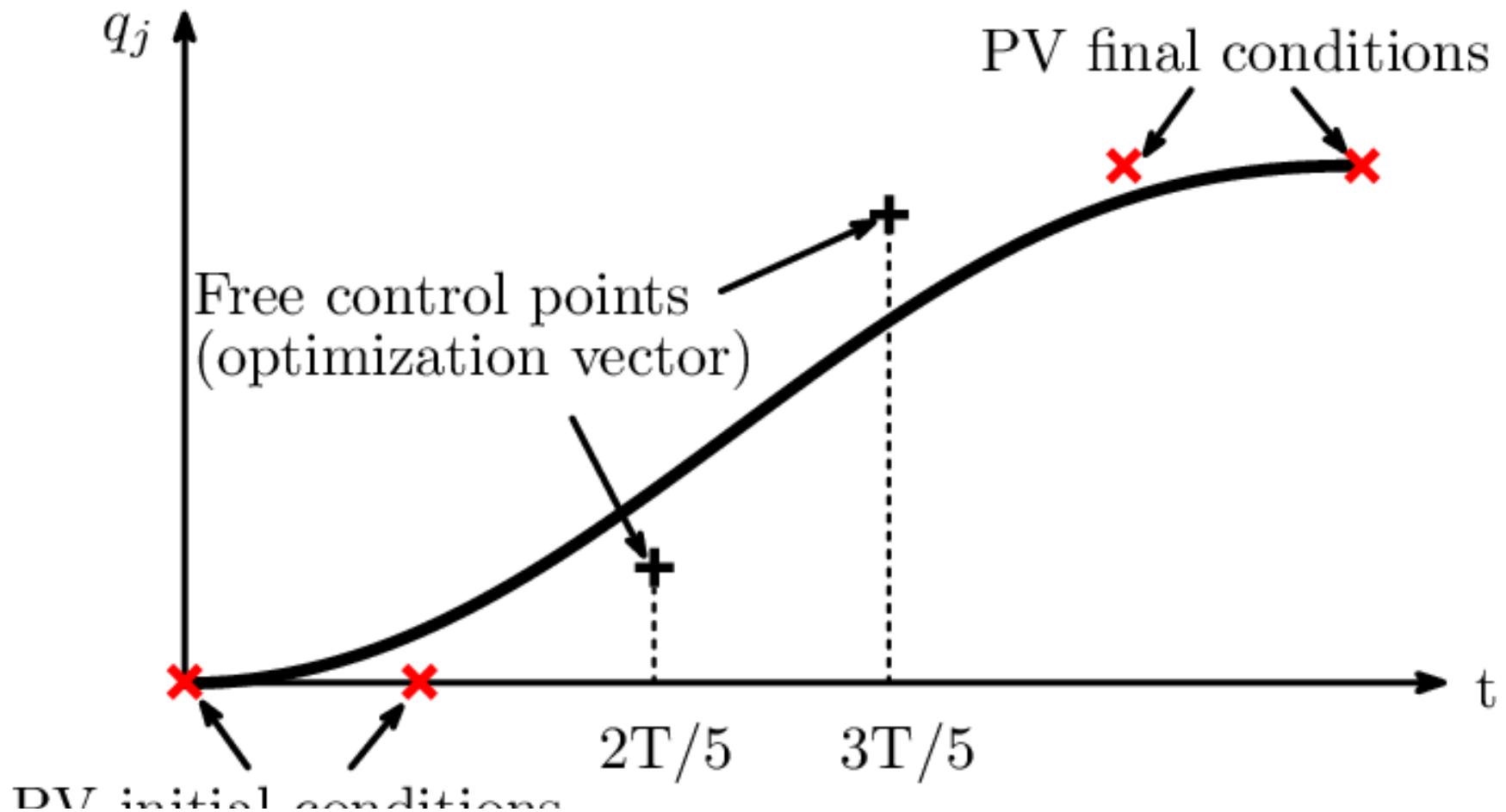
Kinematic Planning



Dynamics Planning: Incorporating Force and Torques



Optimization Methods: Trajectory Parametrization

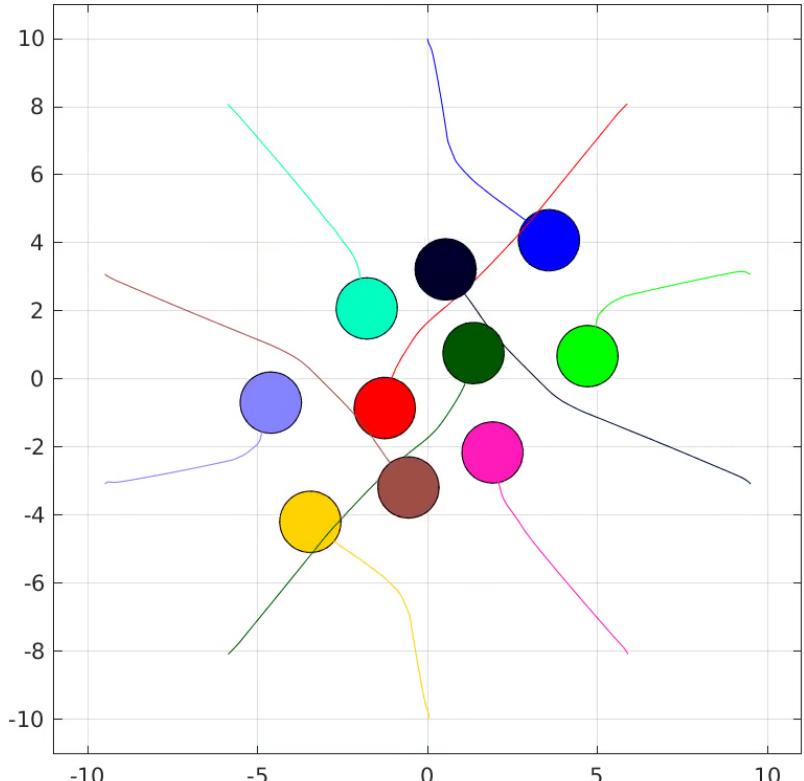


Optimization Methods: Model Predictive Control

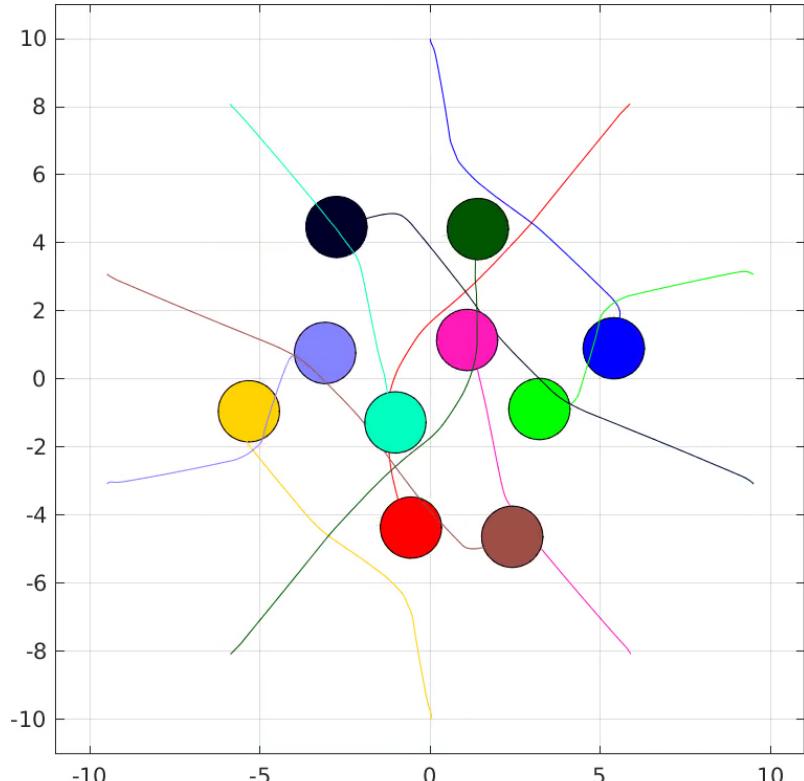
- Play video

Planning in Dynamic Scenes

(a)



(b)



(c)

(d)

Course Layout

- Quiz – 10%
- Assignments – 40% ($2 * 20$) Maybe 4 assignments
- Project – 20%
- End Sem – 30%