




Motion Generation for Manipulation

Slides courtesy of
Guest lecture by Balakumar Sundaralingam

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Robots are increasingly deployed in new domains

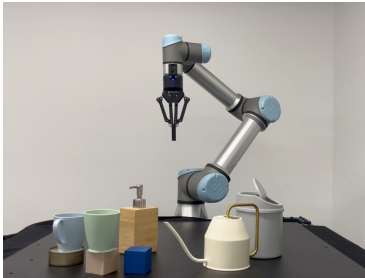
Online Motion Planning in milli-seconds



Visual Inspection (UR) Palletizing (Dexterity) Food & Service Robotics (Dexai)

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In this Lecture



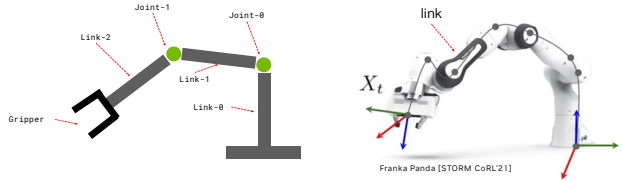
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graph TD
    Cameras[Cameras] --> WorldRepresentation[World Representation]
    Cameras --> GraspGeneration[Grasp Generation]
    WorldRepresentation --> MotionGeneration[Motion Generation]
    GraspGeneration --> Task[Task]
    MotionGeneration --> Task
    Task --> Controller[Controller]
    Controller --> Manipulator[Manipulator]
  
```

3

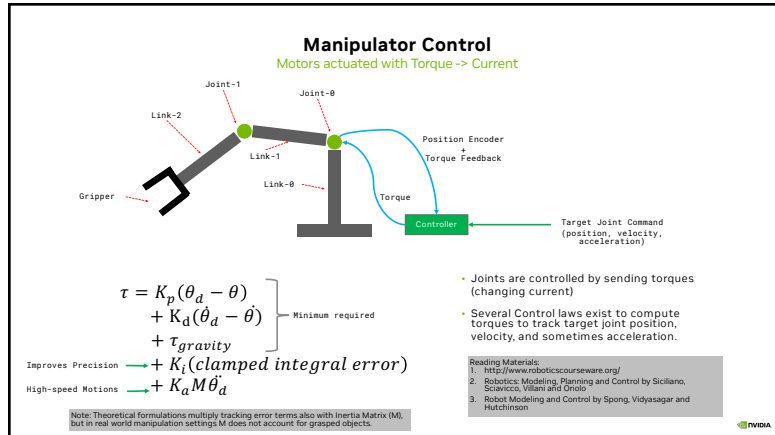
Manipulator

Common manipulators contain serial chain of links connected with actuated joints

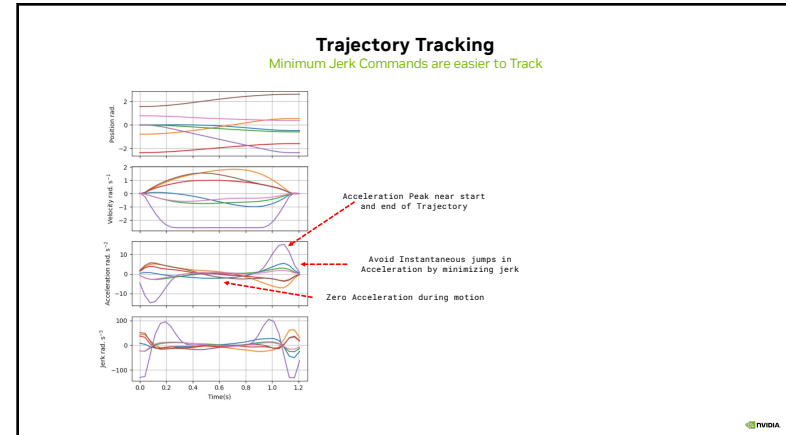


Joint-1, Link-2, Joint-0, Link-1, Link-0, Gripper, link, X_t , Franka Panda [STORM CoRL'21]

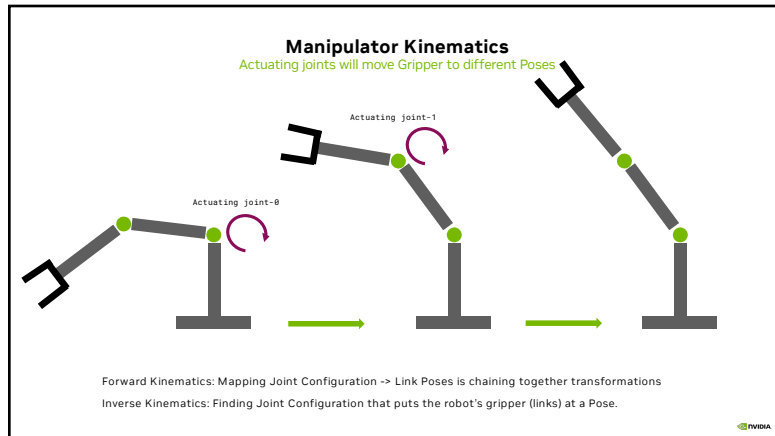
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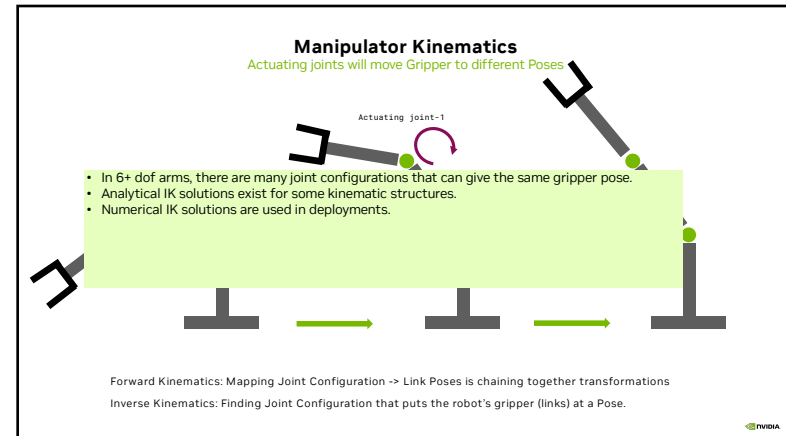
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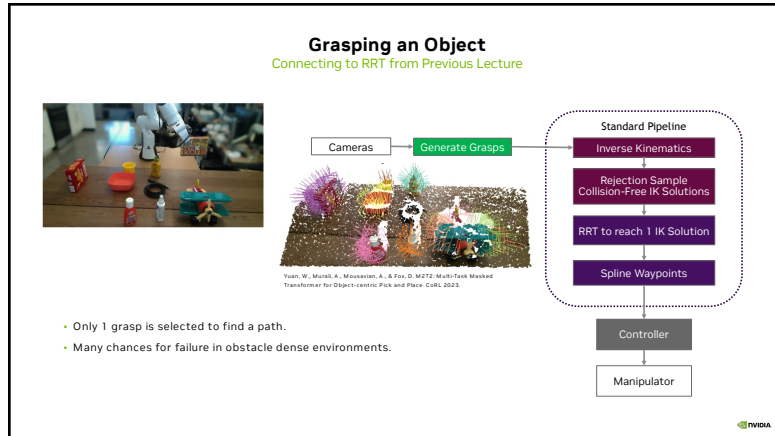
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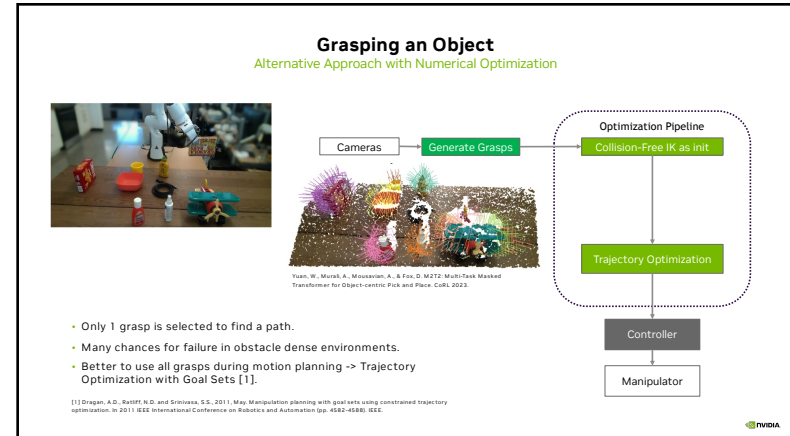
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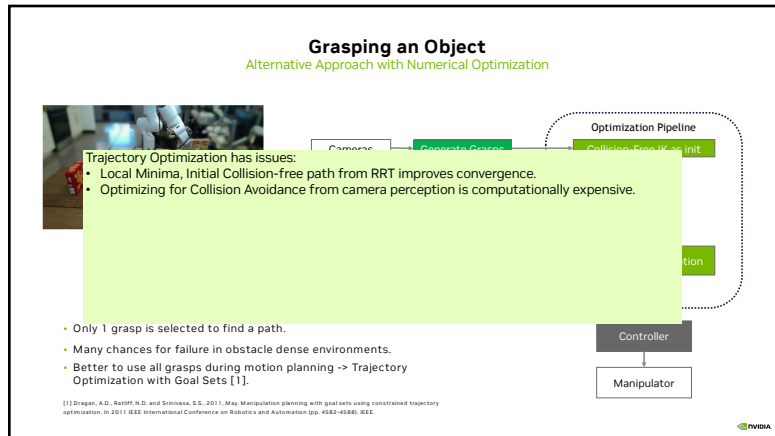
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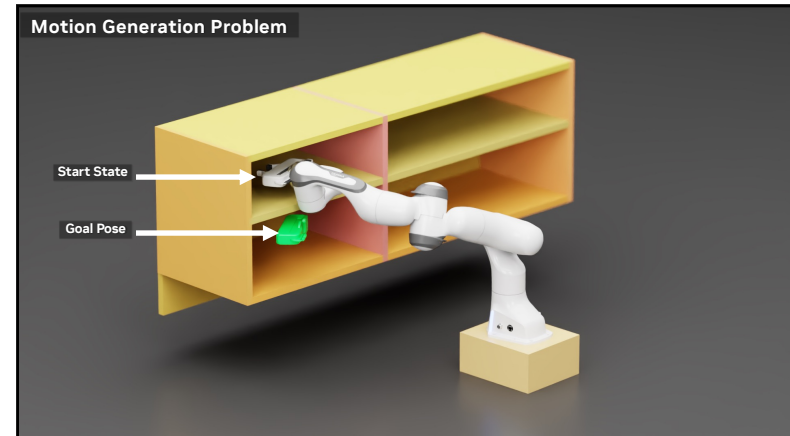
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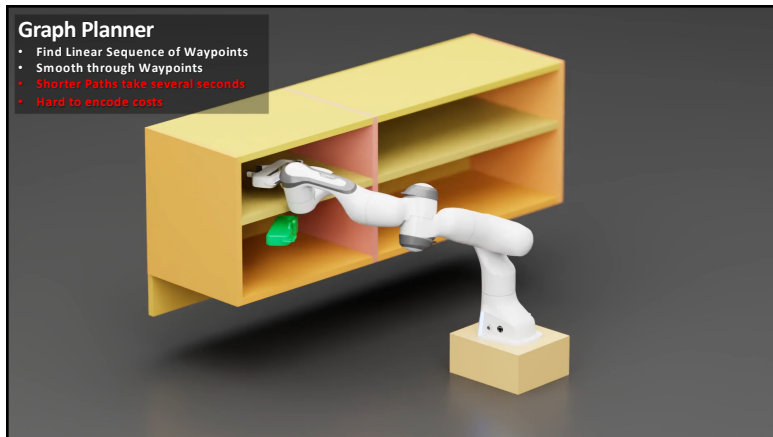
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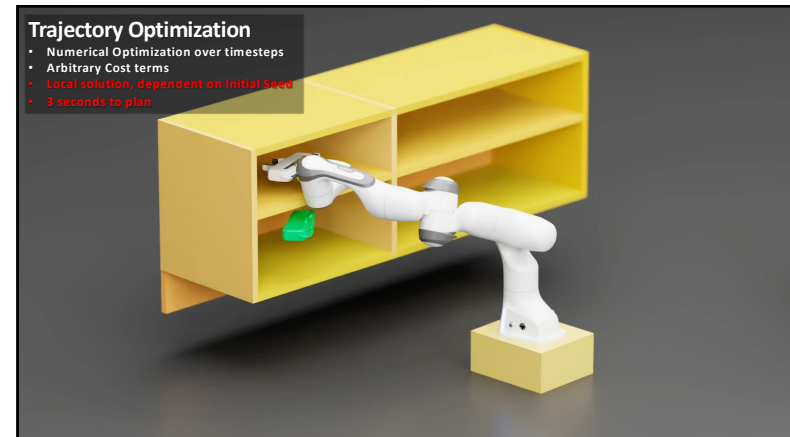
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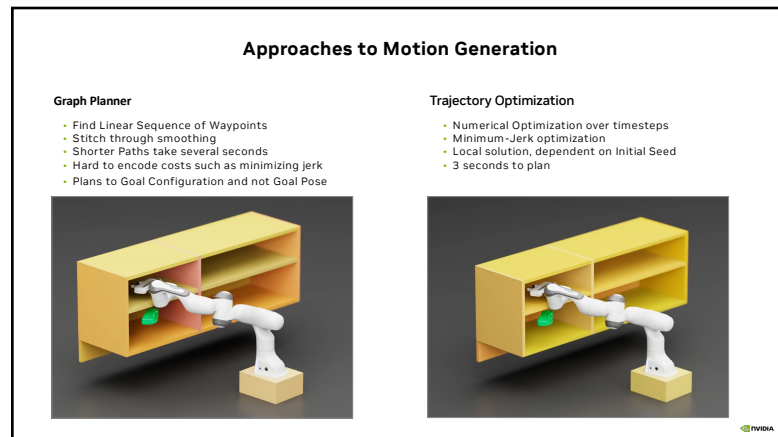
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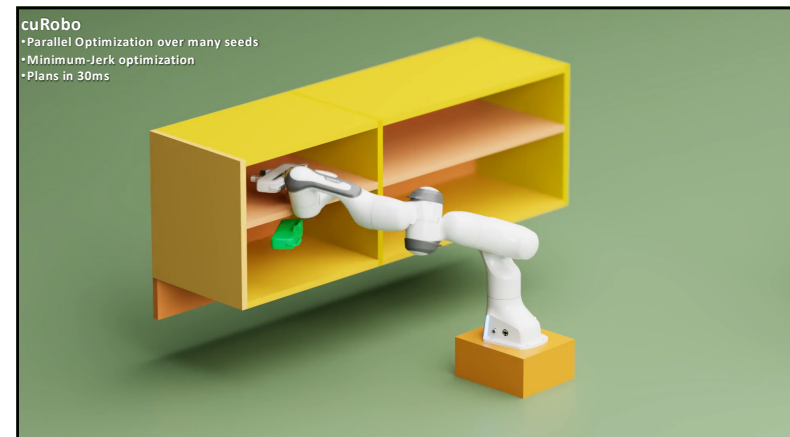
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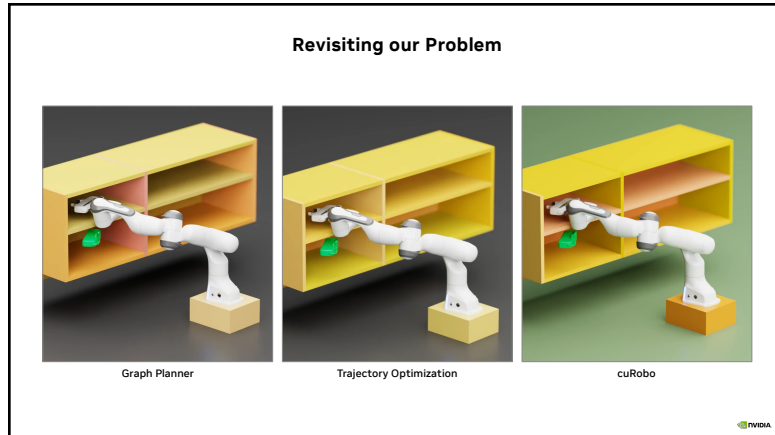
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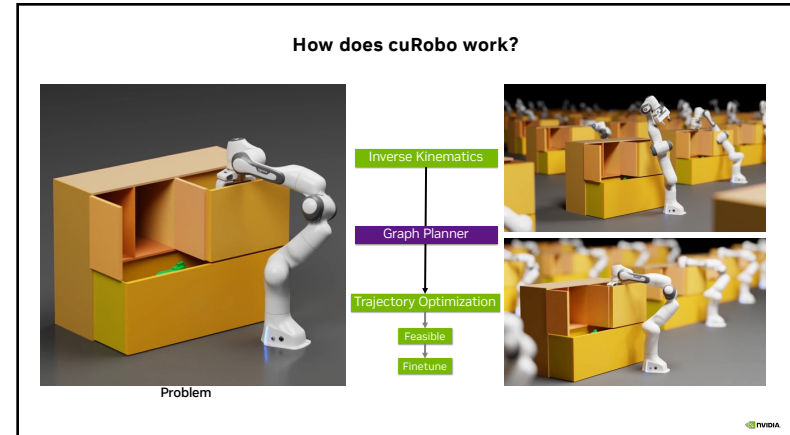
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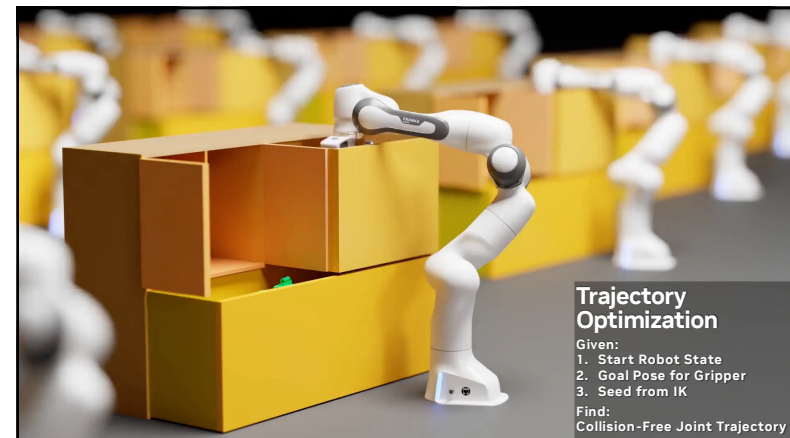
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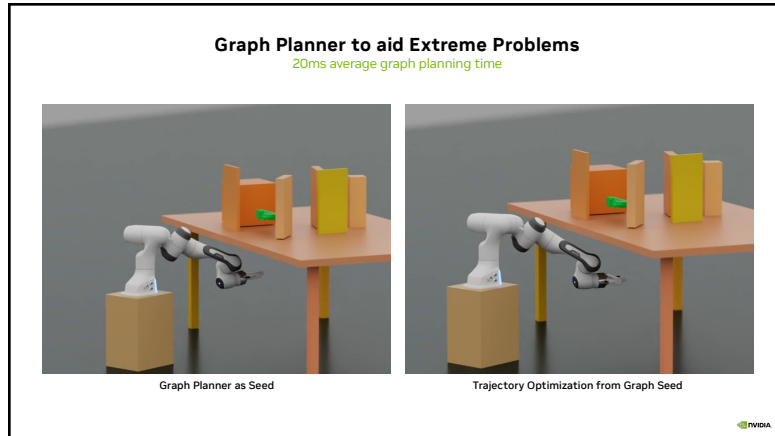
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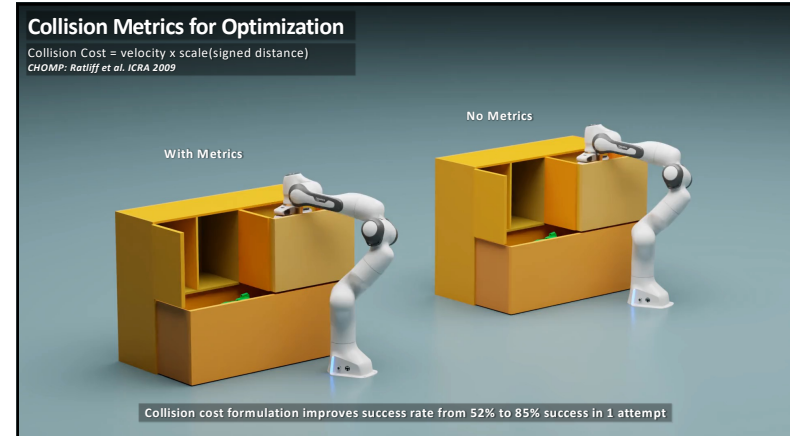
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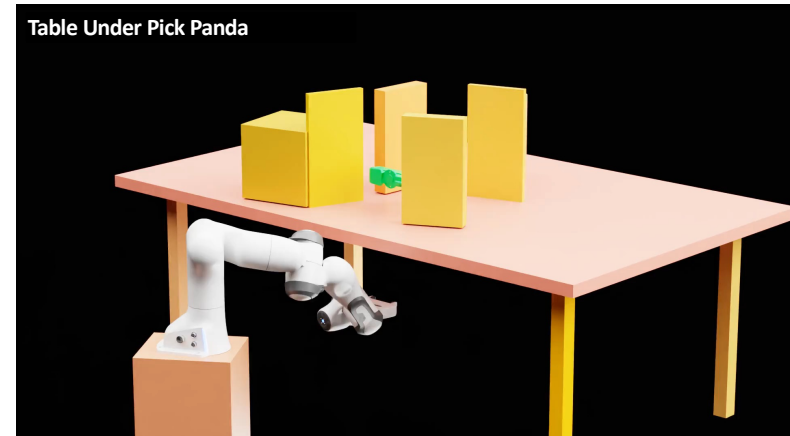
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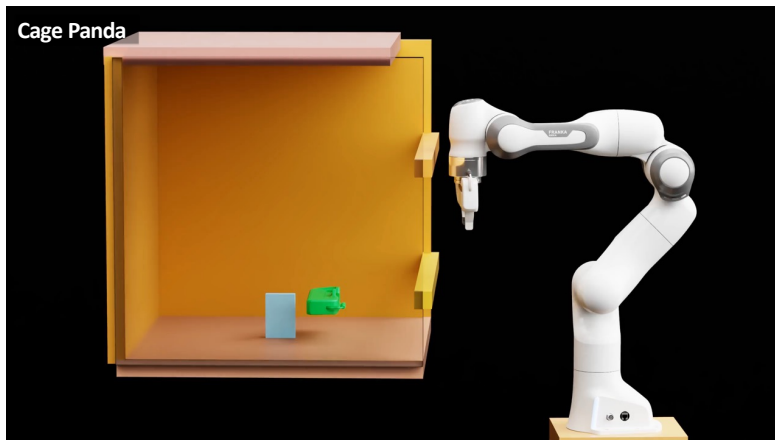
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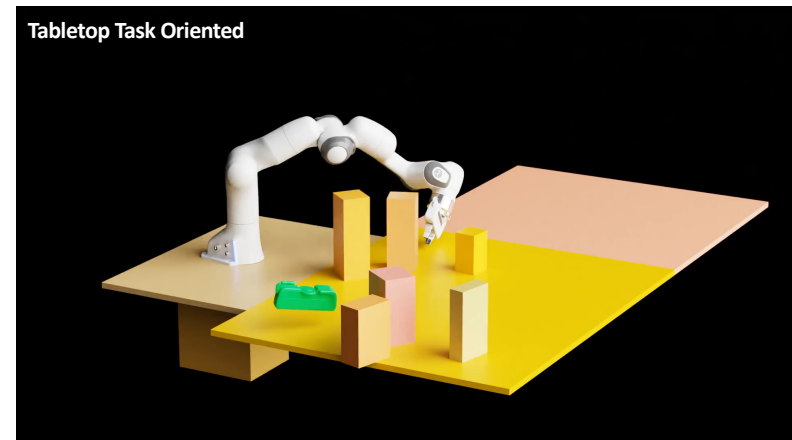
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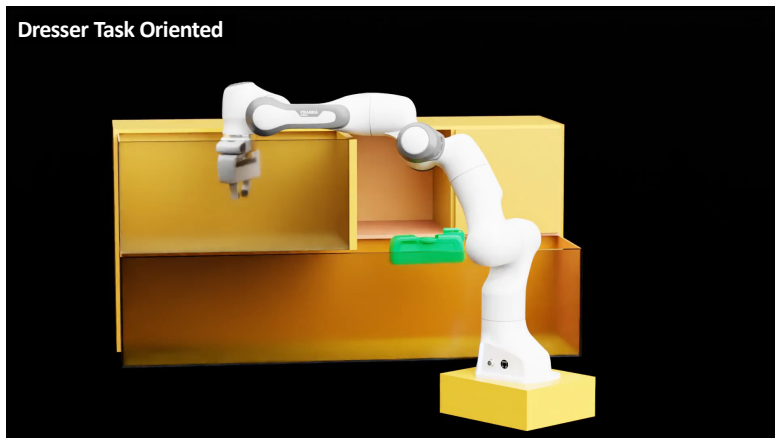
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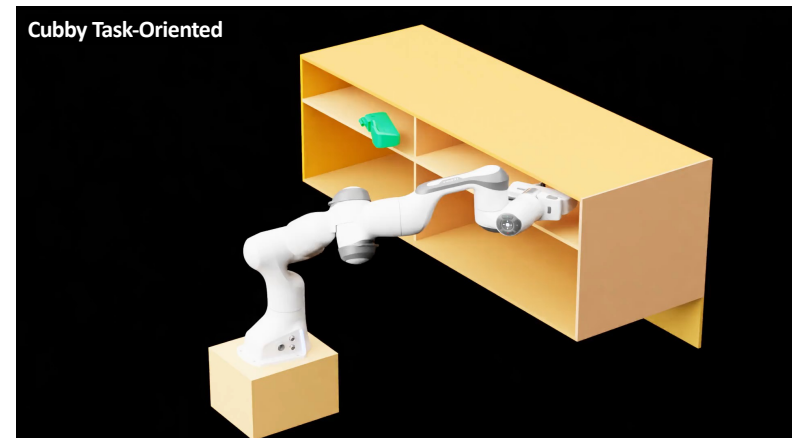
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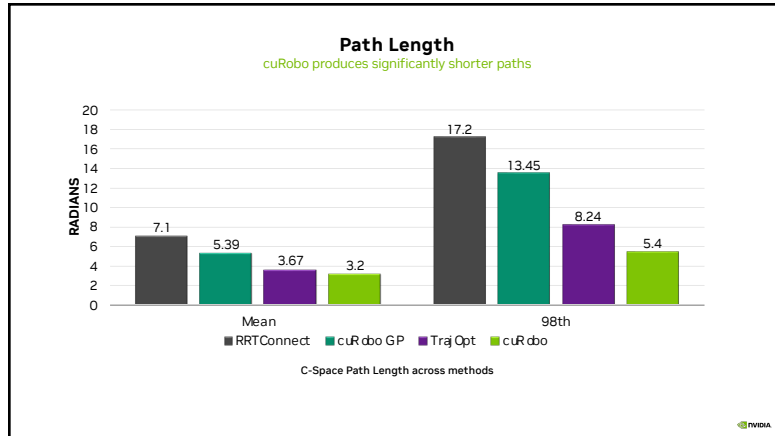
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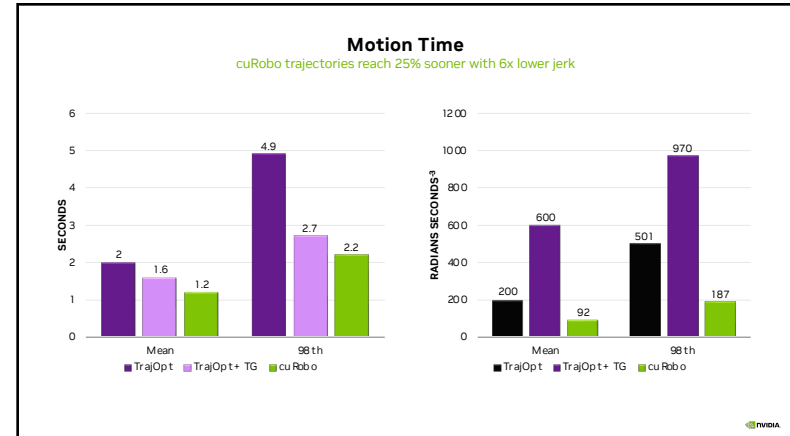
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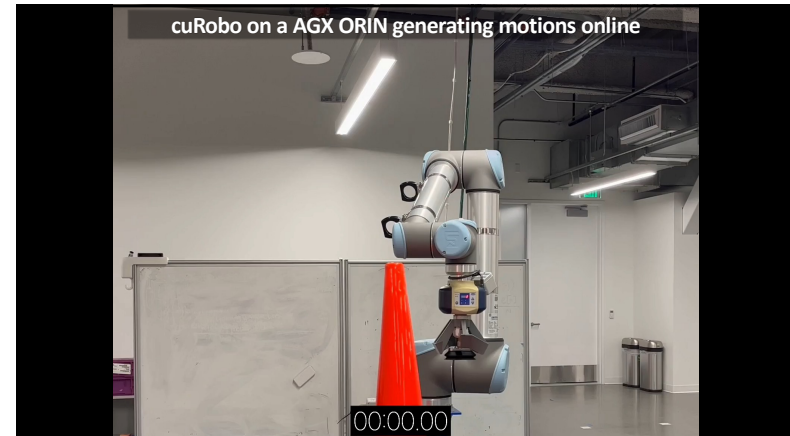
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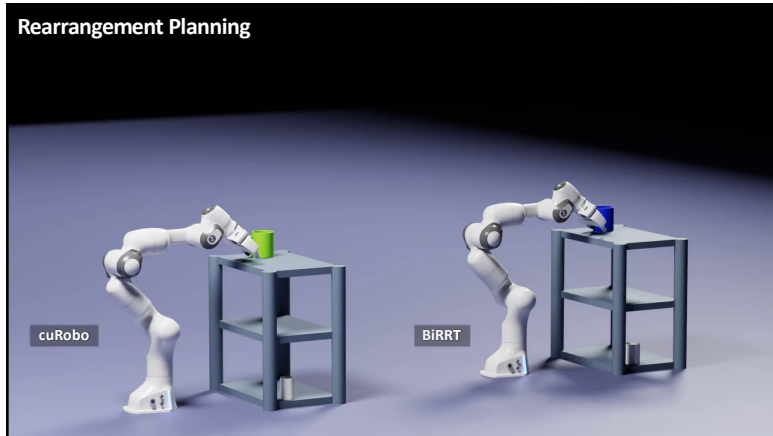
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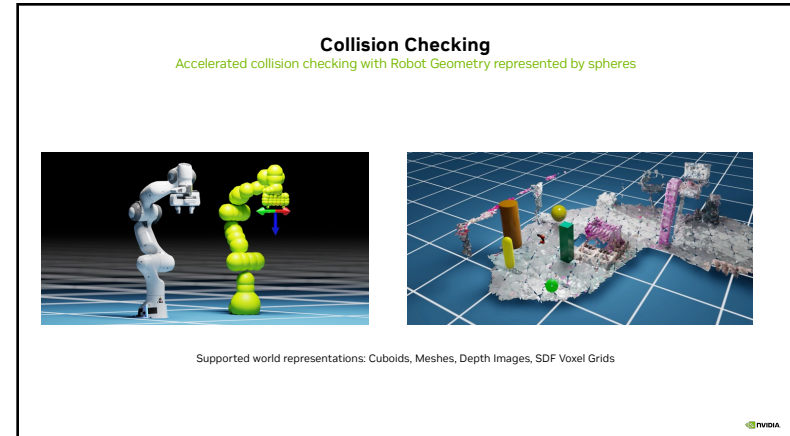
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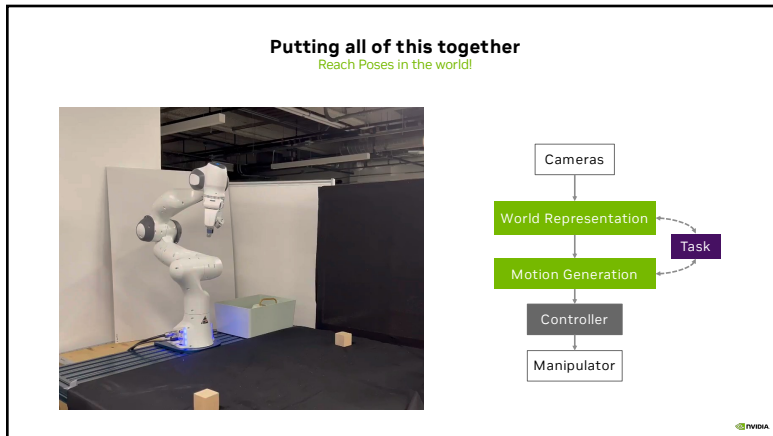
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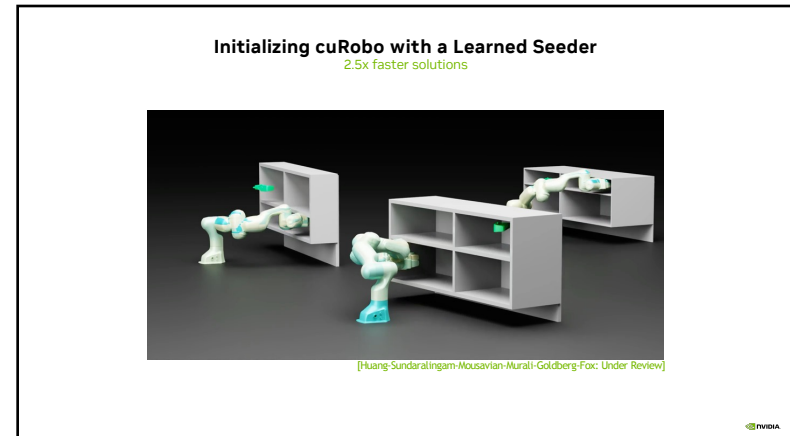
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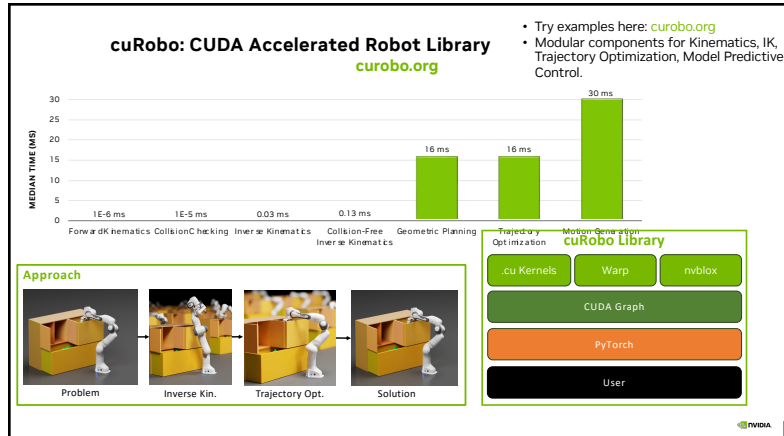
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