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Introduction to V-REP

- Versatile robot simulator (http://www.coppeliarobotics.com/) allowing control of objects/models using remote API's.
- Allowing to write controllers in C++, Python, or MATLAB.
- Ability to perform inverse/forward kinematics, dynamic analysis and path/motion planning.

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Introduction to V-REP

- Small overview of UI
- BubbleRob Tutorial
- Remote API
- Path Planners
- Lua Programming Language

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Small overview of UI

- Installing V-Rep (http://www.coppeliarobotics.com/downloads.html)
- Running V-Rep
- UI (http://www.coppeliarobotics.com/helpFiles/index.html)

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BubbleRob Tutorial

- User Manual (http://www.coppeliarobotics.com/helpFiles/index.html)

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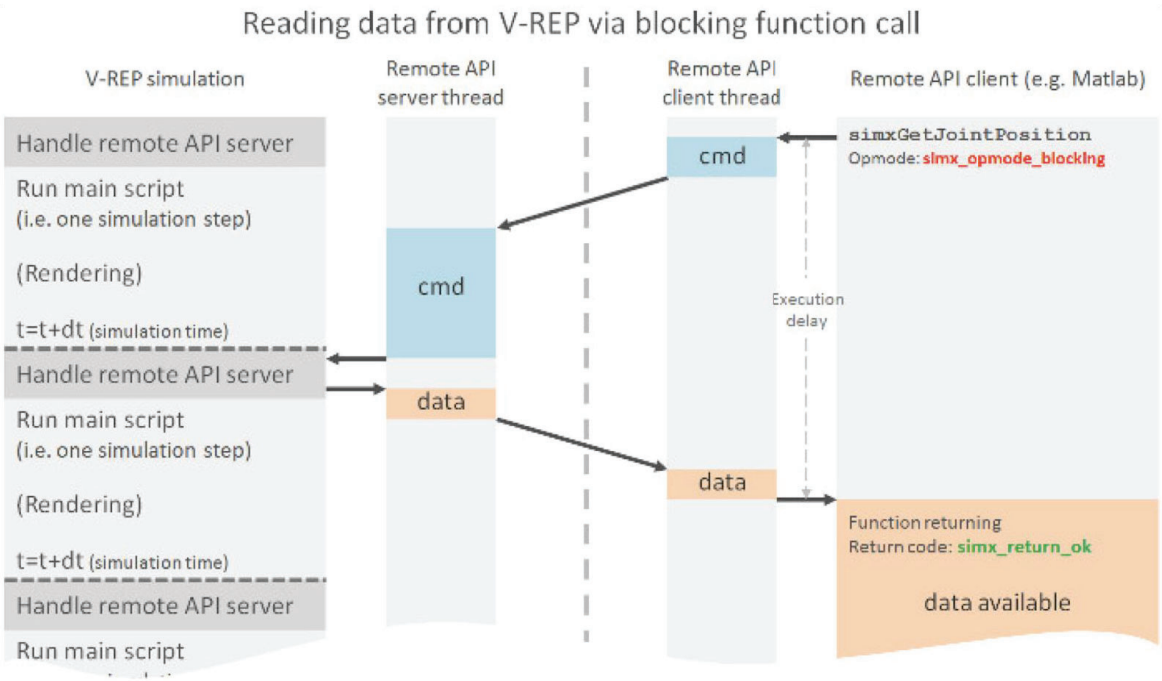
Remote API



- There are several modes for communication (http://www.coppeliarobotics.com/helpFiles/en/remoteApiConstants.htm#operationModes)

- Most common and the one we will work with is blocking function call (synchronous function)

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Remote API

- Key things to keep in mind
  - Client side is enabled (MATLAB, Python, C++): http://www.coppeliarobotics.com/helpFiles/en/remoteApiClientSide.htm
  - Server side is enabled (V-REP): http://www.coppeliarobotics.com/helpFiles/en/remoteApiServerSide.htm

Path Planners

- Path planners (http://www.coppeliarobotics.com/helpFiles/en/oldPathPlanningModule.htm)

- Motion planners (http://www.coppeliarobotics.com/helpFiles/en/oldMotionPlanningModule.htm)

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Lua Programming Language

- Internal Codes
- Major functions
- Why?
- https://www.lua.org/pil/contents.html