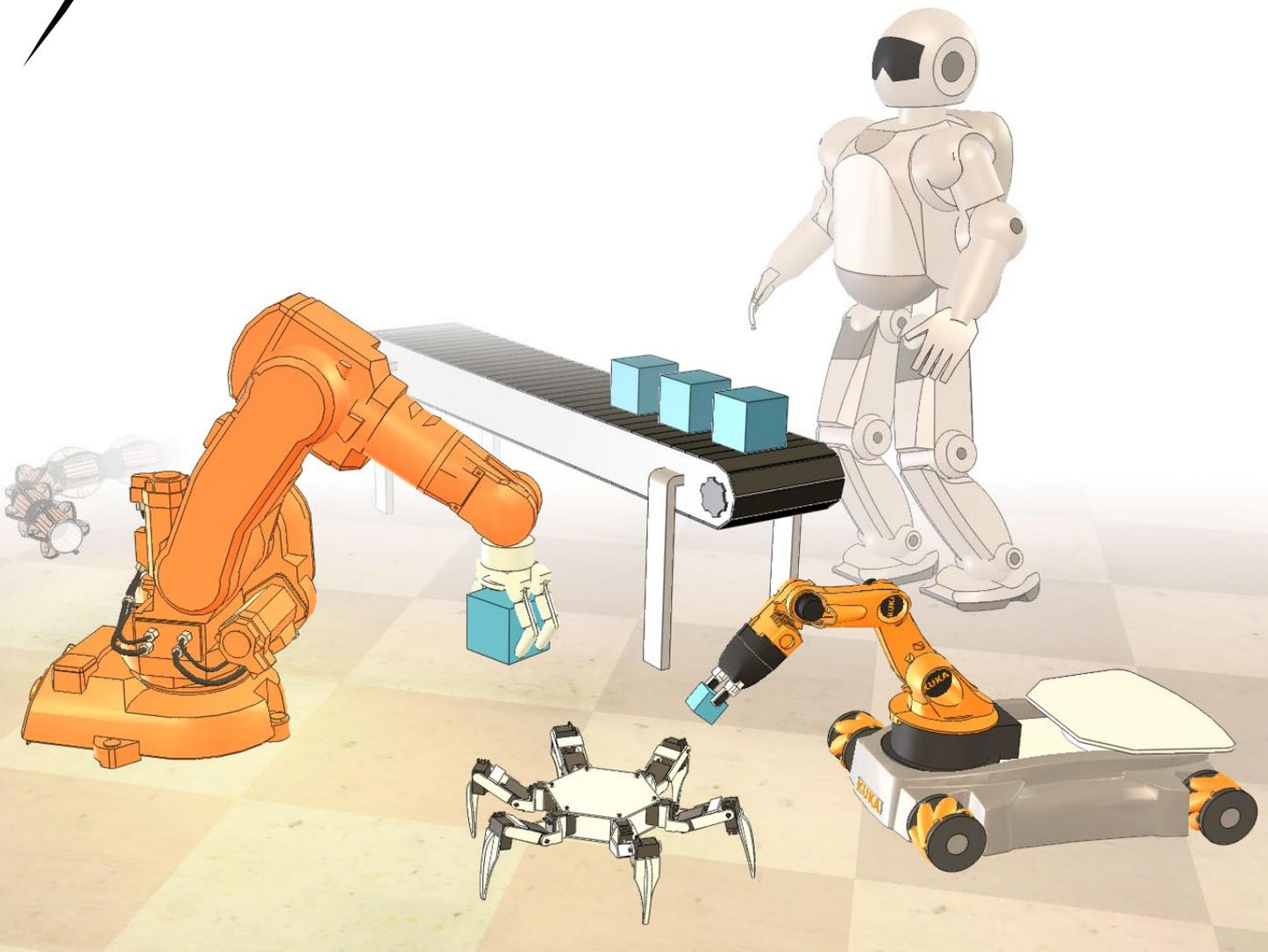


v-rep

virtual robot experimentation platform



Create. Compose. Simulate. **Any Robot.**

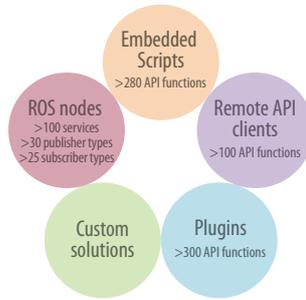
- _ fast prototyping and verification
- _ simulation of factory automation systems
- _ fast algorithm development
- _ robotics related education
- _ remote monitoring
- _ hardware control
- _ safety monitoring
- _ product presentation

COPPELIA  **ROBOTICS**

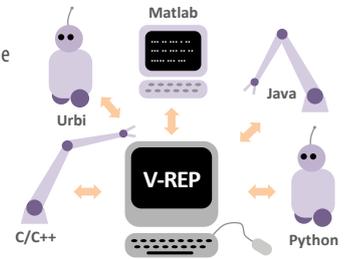
Main Features:

Five programming approaches:

Simulator and simulations are fully customizable, with five programming approaches that are mutually compatible and that can even work hand-in-hand

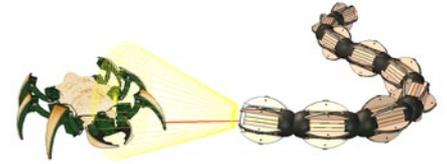
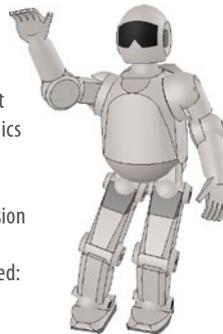


Remote API: More than 100 embeddable V-REP functions: control a simulation or the simulator itself remotely (e.g. from a real robot or another PC). Easy to use, supports sync. or async. operation, is optimized for heavy data transfer and minimizes communication lag. Five languages are supported.

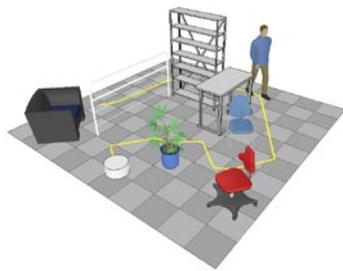


Collision detection and distance calculation: Fast interference checking and minimum distance calculation between any meshes or collection of meshes

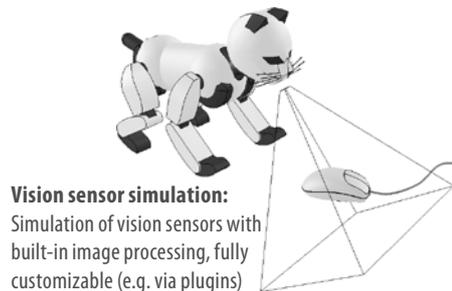
Dynamics/Physics: Fast and customizable dynamics calculations to simulate real-world physics and object interactions (collision response, grasping, etc.). Two engines are supported: Bullet and ODE



Proximity sensor simulation: Powerful proximity sensor simulation, fully customizable. Performs an exact minimum distance calculation within a custom detection volume (more realistic than discrete detection rays)



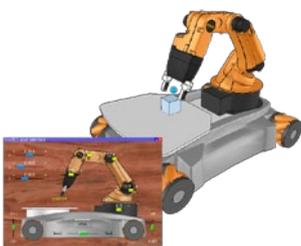
Path planning: Holonomic path planning in 2-6 dimensions, and non holonomic path planning for car-like vehicles



Vision sensor simulation: Simulation of vision sensors with built-in image processing, fully customizable (e.g. via plugins)



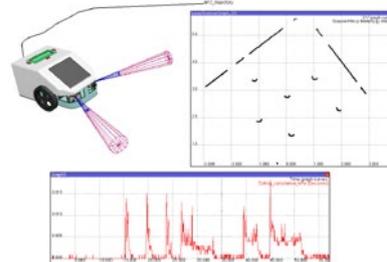
Forward/inverse kinematics: Full forward/inverse kinematics calculations module for any type of mechanism (branched, closed, redundant, containing nested loops, etc.) can be embedded



Custom user interfaces: Unlimited number of fully customizable user interface elements, with integrated edit mode. Custom Windows-style dialogs are of course also supported via plugins

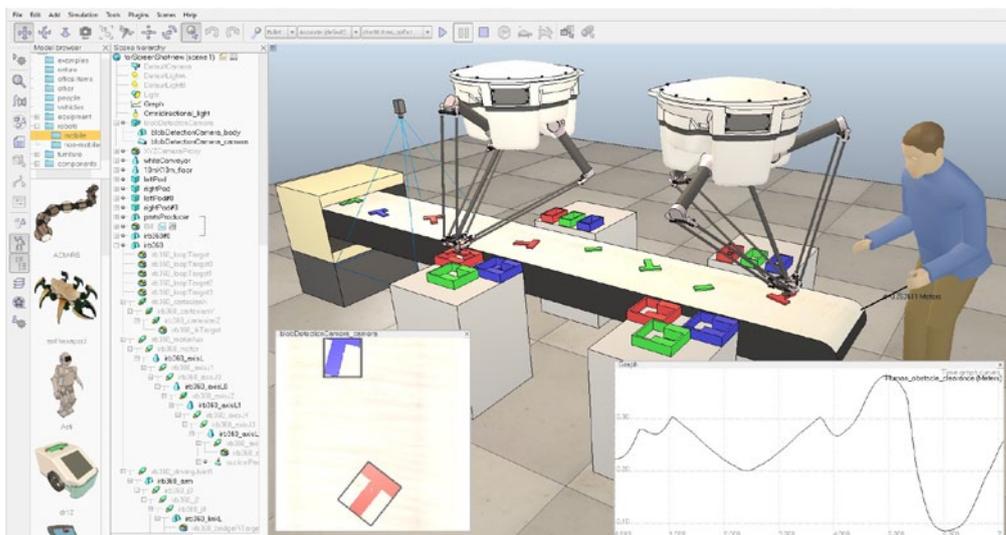
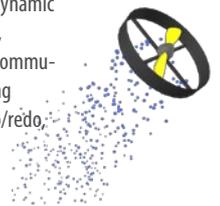


Integrated edit modes: e.g. mesh edit modes, including a semi-automatic primitive shape extraction method (invaluable to create scenes with optimized dynamic content)



Data recording and visualization: A large variety of recordable data streams can be used to display time-graphs, or can be combined with each other to form x/y-graphs, or 3D curves

Many more features: e.g. Reflexxes Motion Library type IV, dynamic particles, simulation of surface cutting, video recorder, simulation of wireless communications, simulation of paint or welding seams, optical mirrors, multilevel undo/redo, exhaustive documentation, etc.



Demonstration videos & evaluation / student version download:

www.coppeliarobotics.com

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