Assistant (Student)

Development of the Cloud-based Kinova Movo Virtual Twin

IsaacSim allows us to use the Unity3D game engine as the simulation environment for Isaac robotics. IsaacSim provides an expandable test environment to evaluate the performance of several complex robotic interactions and dynamic navigation. It also provides an infinite stream of procedurally generated, fully annotated training data for machine learning. Features include emulation of sensor hardware and robot base models, scene randomization, and scenario management. In this project, the student shall develop a realistic robot model of Kinova Movo as well as a reconstructed version of the current demo lab in Unity3D using NVidia ISAAC Sim SDK. Later this virtual twin of the environment and robot will be used for robot training in particular haptic sensitive tasks for medical and assistive applications.

Tasks:

● Porting the current Kinova Movo Gazebo simulation to Unity3d
● Create the virtual twin of the lab environment
● Host multiple simulation environments for both students and robot training
● Simulate the object friction and Kinesthetic interactions
● Evaluate with different real scenarios

Prerequisites

● Strong Unity3D, C#, C++ Background
● Be familiar with the robot operating system (ROS)

Contact

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Advisors

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