[Presenter]
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[Title]
Lab Automation with Robots and Reinforcement Learning by Unity

[Abstract]
First, I will introduce our activities at LiNKX, where we use robots and AI to automate tasks. Until now, most of our products have been introduced to production sites, but recently, we have been focusing on automation in research and development sites. Robots can be used to perform pipetting, weighing, pH measurement, viscosity measurement, visual photography, opening and closing bottle lids, and bottle washing. These tasks can be combined to automate a series of laboratory operations. A measuring instrument that cannot be connected to a PC can be integrated into an automated system by the robot's physical operation and a camera.
Second, as a personal approach to reinforcement learning, I would like to introduce Unity, a game development environment in which reinforcement learning can be applied. Unity makes it easy to create 3D environments having a physical properties, such as robots. Then, you can apply reinforcement learning algorithms such as PPO (Proximal Policy Optimization) and SAC (Soft Actor-Critic) to the agent. As an example of the application, I would like to show you a game where you play a rolling tennis with a robot trained by reinforcement learning.