



# Robot simulation and control of KINOVA Gen3 manipulator + Robotiq gripper

ผศ.ดร.ศุภชัย วรพจน์พิศุทธิ์  
ภาควิชาวิศวกรรมไฟฟ้าและคอมพิวเตอร์  
ม.ธรรมศาสตร์

# Files and Zoom

---



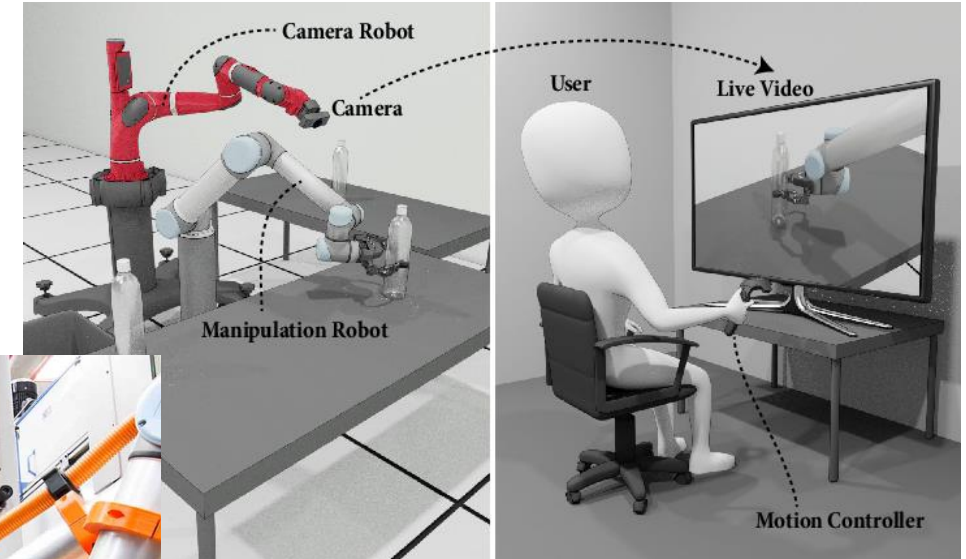
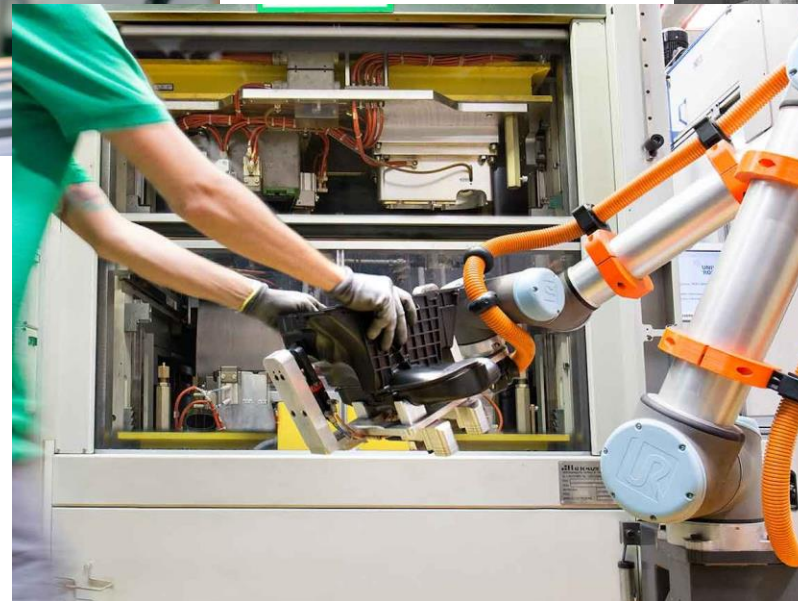
Google Drive

[https://drive.google.com/drive/folders/1VEO9128O0WVvCSilwy1NuX-ssJBegth\\_?usp=sharing](https://drive.google.com/drive/folders/1VEO9128O0WVvCSilwy1NuX-ssJBegth_?usp=sharing)

Zoom session

<https://us06web.zoom.us/j/84655243422?pwd=aFRHVdZ3dEdEcDMrWwkdTmJscGVRZz09>

# Pick-and-Place robot



# Flow of learning – Sep 6<sup>th</sup>

---



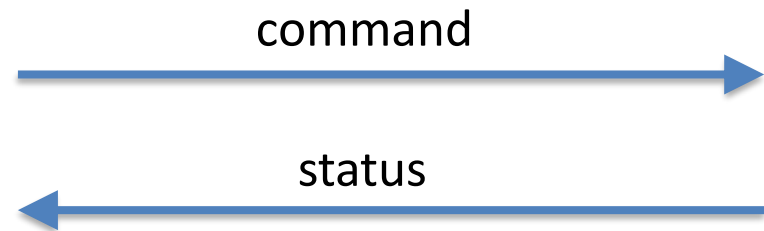
1. Robot simulation
  1. Robot model
  2. Forward and inverse kinematics
  3. Pick-and-place operations
2. MQTT programming
3. GUI development

# ROS



Start working with your robot quickly using new teaching modes or your preferred tools and languages. Gen3 easily integrates with other technologies using the **Kinova Kortex™ API software**, furthermore, you can use the **Kinova Kortex Web App** on any desktop or mobile device.

- **MATLAB** hardware support package
- **ROS** package
- Advanced programming in **C++** and **Python** environments
- **Gazebo** and **Movelt** simulation environments



Controller



Robot manipulator

# Flow of learning – Sep 7<sup>th</sup>

---



1. Robot live coding: solution for 6<sup>th</sup> assignment
  1. MQTT to GUI component
  2. Wrapper function for moveJoints()
  3. Buttons to moveJoints()
  4. Geometry distance to GUI component
  5. Gripper logics + report
2. ROS programming
3. Stateflow programming