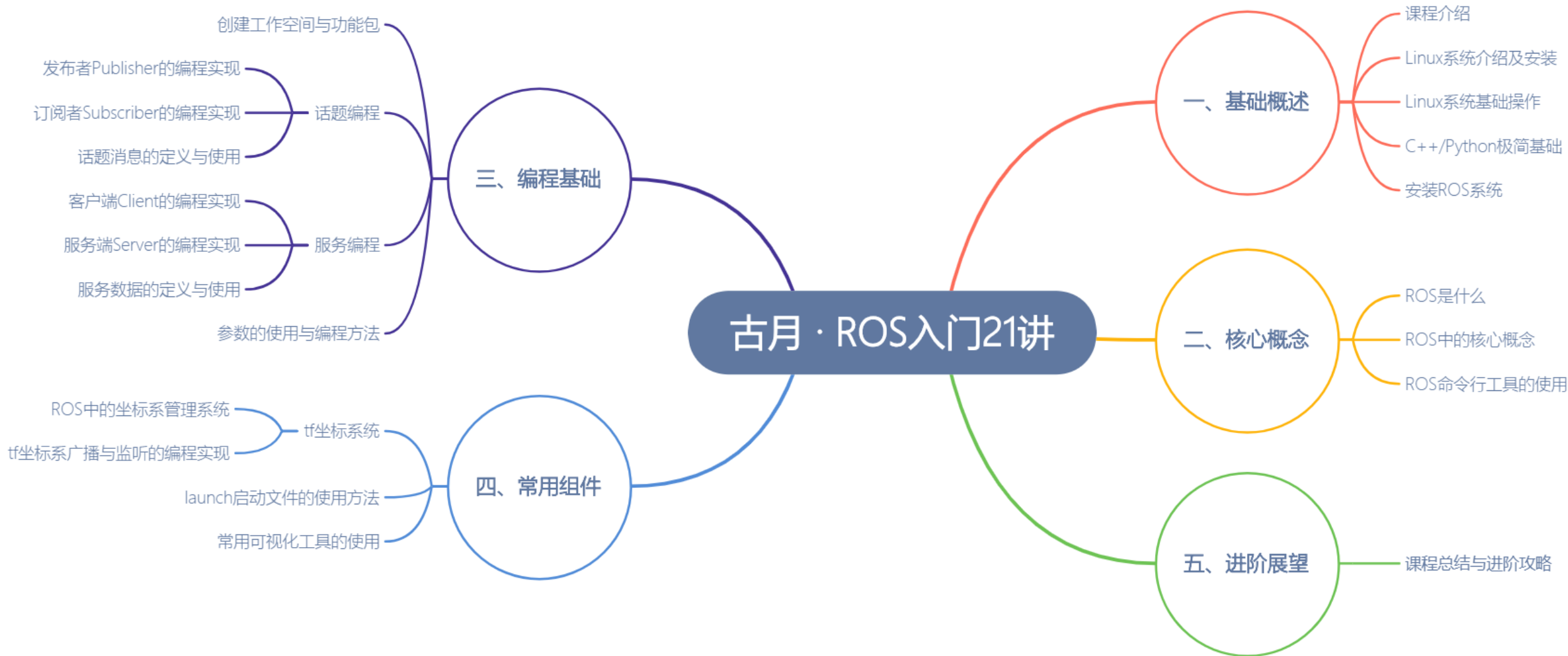


ROS入门  
21讲

# 21.课程总结与进阶攻略

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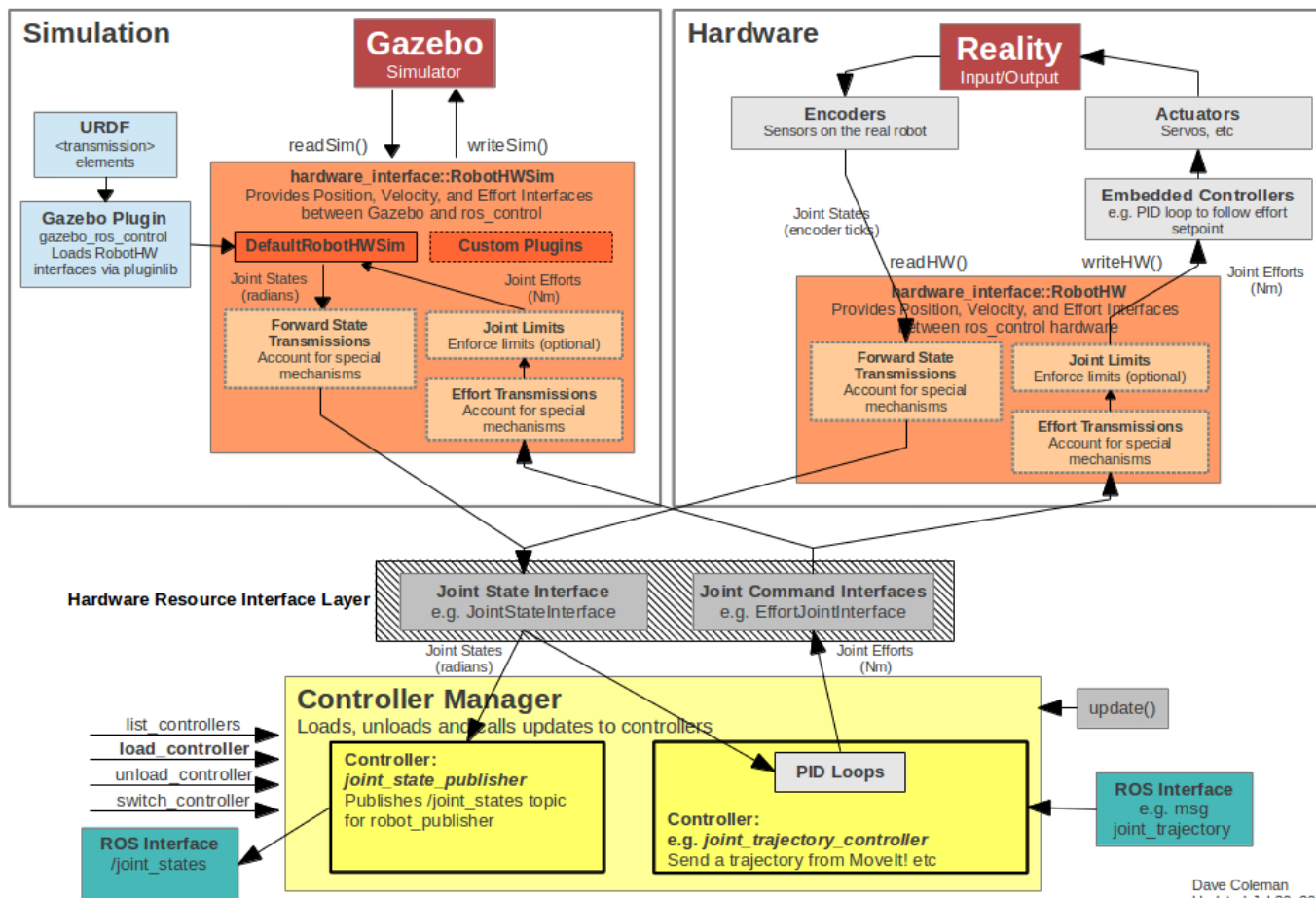
主讲人：古月



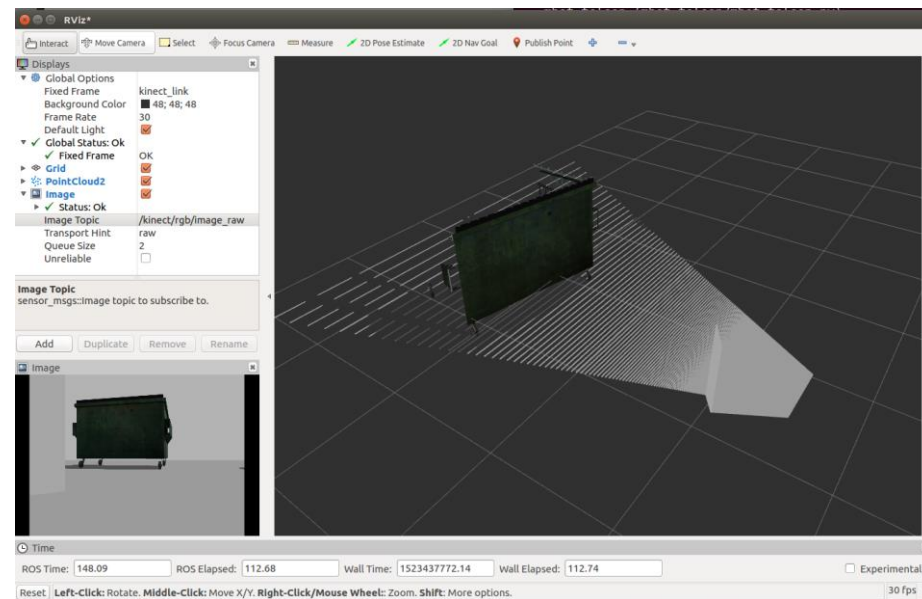
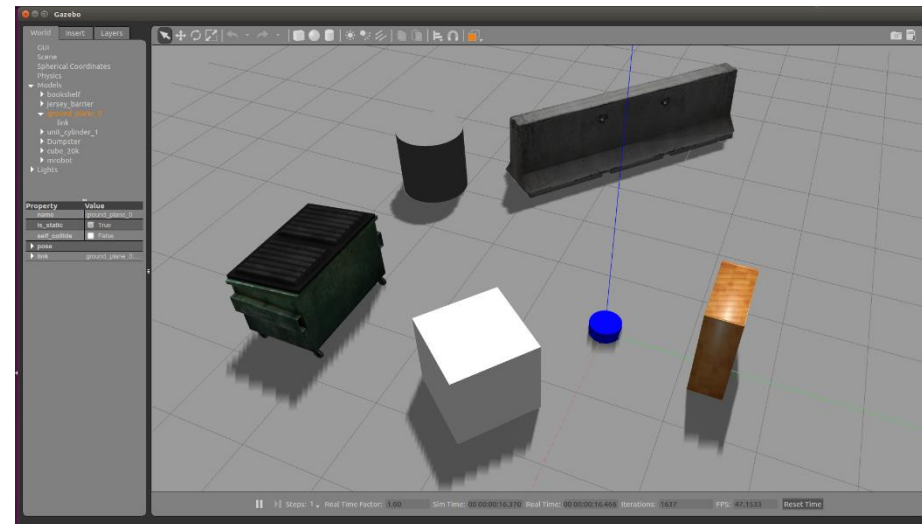
# • 你可以用ROS干什么

## 机器人控制与仿真

GAZEBO + ROS + ros\_control

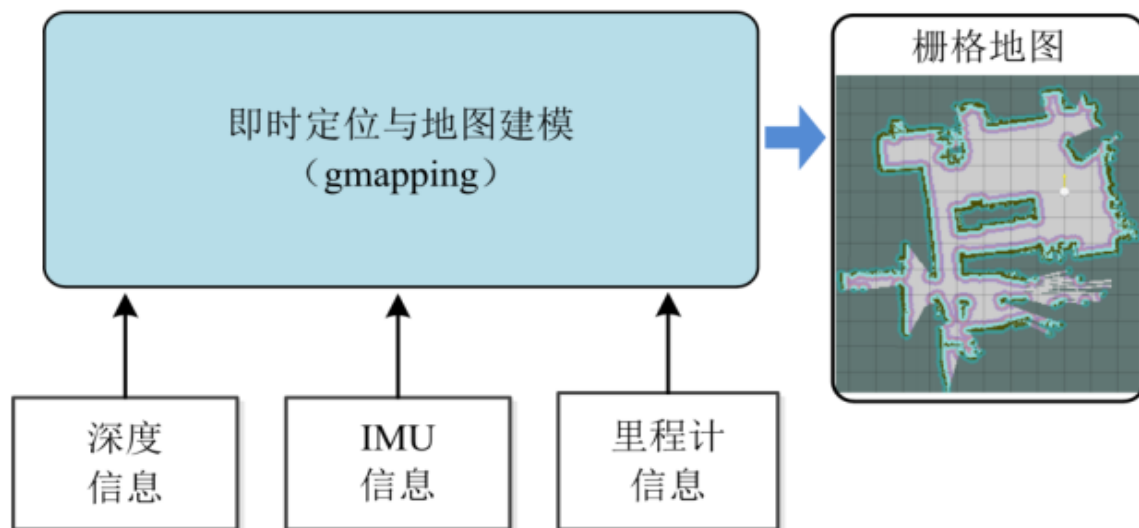


Dave Coleman  
Updated Jul 30, 2013



\*参考链接: [http://wiki.ros.org/ros\\_control](http://wiki.ros.org/ros_control)

# • 你可以用ROS干什么



## gmapping

indigo kinetic **lunar** Show EOL distros: ☐

Documentation Status

## Package Summary

✓ Released ✓ Continuous Integration ✗ No API documentation

This package contains a ROS wrapper for OpenSlam's Gmapping. The gmapping package provides laser-based SLAM (Simultaneous Localization and Mapping), as a ROS node called `slam_gmapping`. Using `slam_gmapping`, you can create a 2-D occupancy grid map (like a building floorplan) from laser and pose data collected by a mobile robot.

- Maintainer status: unmaintained
- Maintainer: Vincent Rabaud <vincent.rabaud AT gmail DOT com>
- Author: Brian Gerkey
- License: Creative Commons-by-nc-sa-2.0

## hector\_mapping

indigo kinetic **lunar** Show EOL distros: ☐

Documentation Status

**hector\_slam:** [hector\\_compressed\\_map\\_transport](#) | [hector\\_geotiff](#) | [hector\\_geotiff\\_plugins](#) | [hector\\_imu\\_attitude\\_to\\_tf](#) | [hector\\_map\\_server](#) | [hector\\_map\\_tools](#) | [hector\\_mapping](#) | [hector\\_marker\\_drawing](#) | [hector\\_nav\\_msgs](#) | [hector\\_slam\\_launch](#) | [hector\\_trajectory\\_server](#)

## Package Summary

✓ Released ✓ Documented

`hector_mapping` is a SLAM approach that can be used without odometry as well as on platforms that exhibit roll/pitch motion (of the sensor, the platform or both). It leverages the high update rate of modern LIDAR systems like the Hokuyo UTM-30LX and provides 2D pose estimates at scan rate of the sensors (40Hz for the UTM-30LX). While the system does not provide explicit loop closing ability, it is sufficiently accurate for many real world scenarios. The system has successfully been used on Unmanned Ground Robots, Unmanned Surface Vehicles, Handheld Mapping Devices and logged data from quadrotor UAVs.

- Maintainer status: maintained
- Maintainer: Johannes Meyer <meyer AT fsr.tu-darmstadt DOT de>
- Author: Stefan Kohlbrecher <kohlbrecher AT sim.tu-darmstadt DOT de>
- License: BSD
- Source: git [https://github.com/tu-darmstadt-ros-pkg/hector\\_slam.git](https://github.com/tu-darmstadt-ros-pkg/hector_slam.git) (branch: catkin)

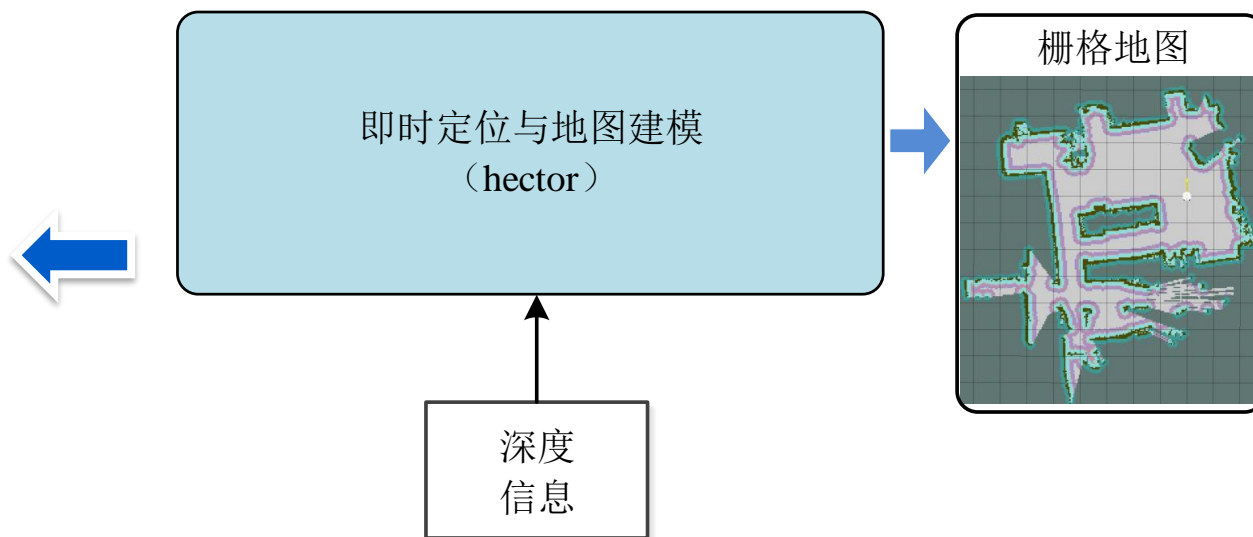
### Package Links

[Code API](#)  
[Msg API](#)  
[FAQ](#)  
[Changelog](#)  
[Change List](#)  
[Reviews](#)

**Dependencies (10)**

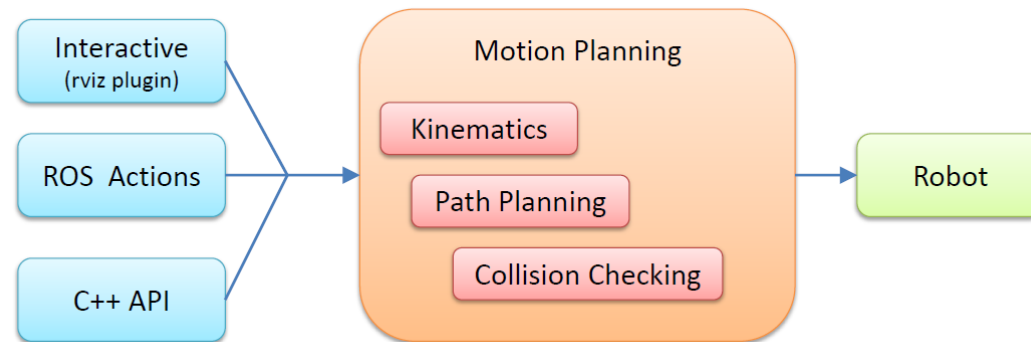
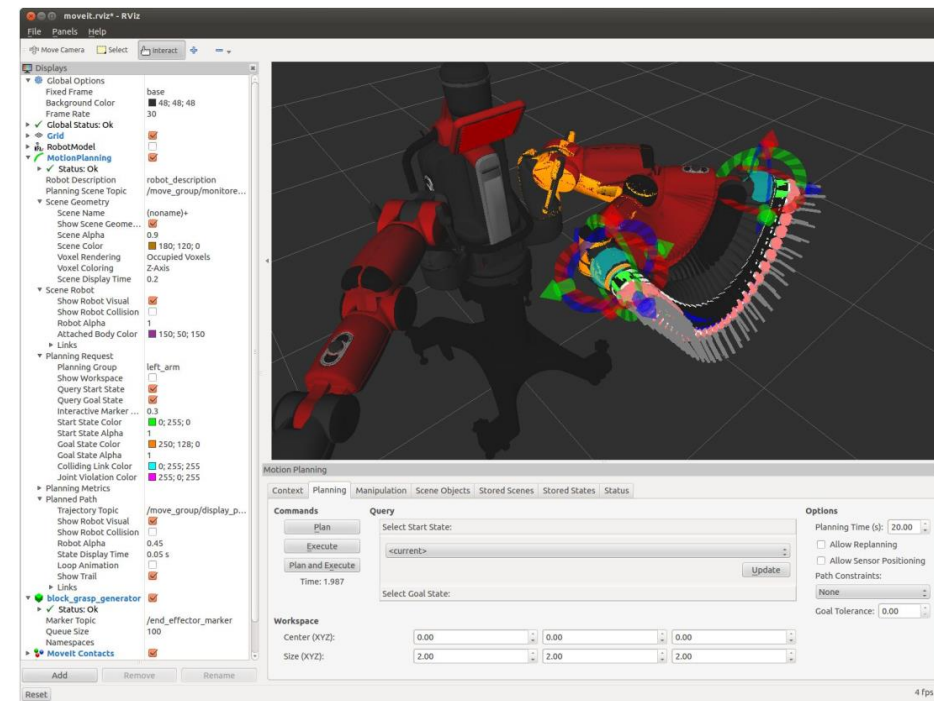
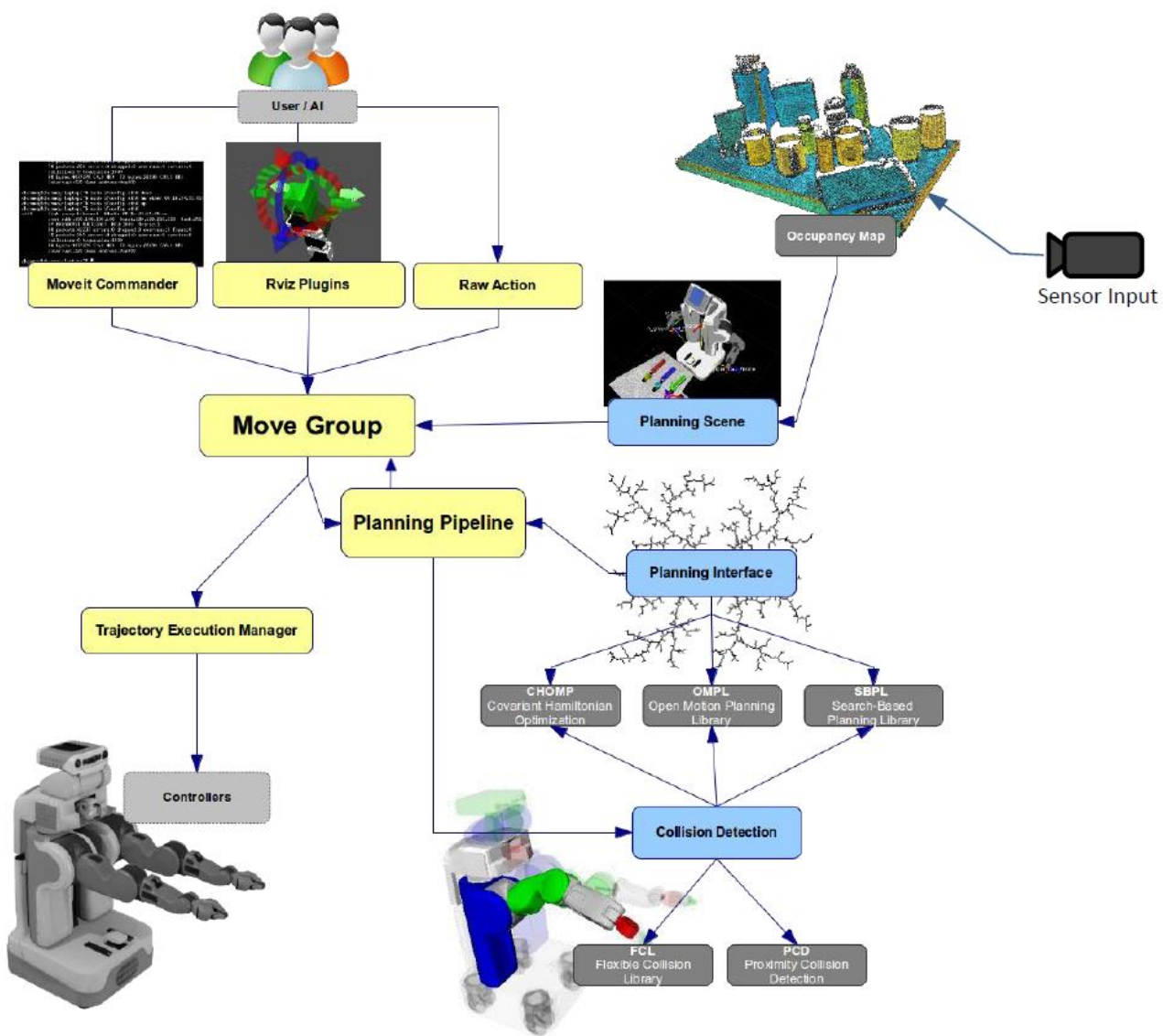
**Used by (4)**

**Jenkins jobs (6)**



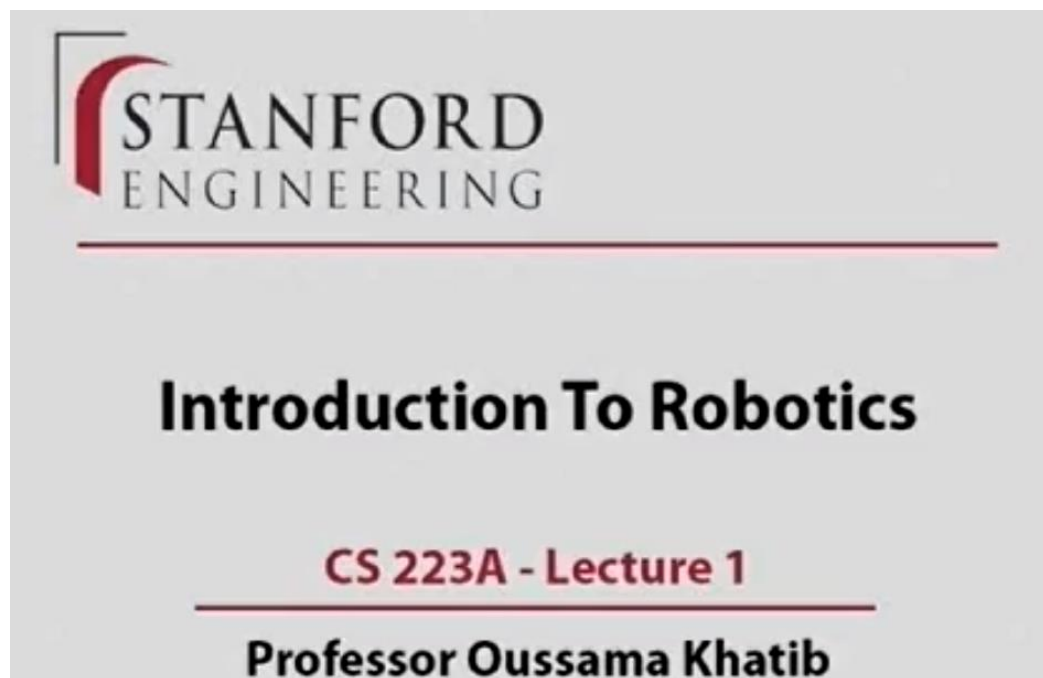
\* 参考链接: <http://wiki.ros.org/gmapping/>、[http://wiki.ros.org/hector\\_slam](http://wiki.ros.org/hector_slam)

# • 你可以用ROS干什么



\* 参考链接: <https://moveit.ros.org/>





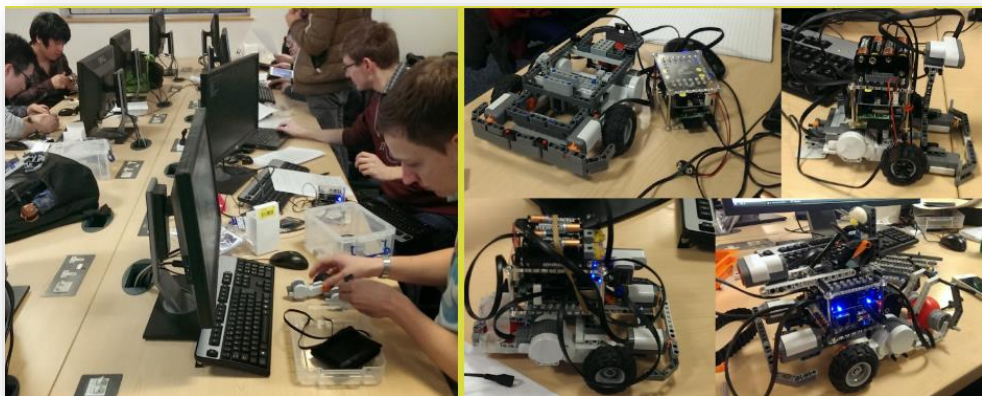
斯坦福大学公开课 —— 机器人学

<https://www.bilibili.com/video/av4506104/>



交通大学 —— 机器人学

<https://www.bilibili.com/video/av18516816/?p=2>



### Andrew Davison的机器人学讲座课程

<http://www.doc.ic.ac.uk/~ajd/Robotics/index.html>

#### Lectures

Number	Title of lecture	Teacher	Material
151-0851-00L	Robot Dynamics	M. Hutter, R. Siegwart, T. Stastny	<a href="#">Material</a> →
151-0662-00L	Programming for Robotics - Introduction to ROS	D. Jud, M. Wermelinger, Marko Bjelonic, P. Fankhauser, M. Hutter	<a href="#">Material</a> →

### ETH - Robotic Systems Lab

<http://www.rsl.ethz.ch/education-students/lectures.html>

## ROS理论与实践

(以移动机器人为例)

- 研发、教学、实战经验丰富的讲师团队
- 全新录制，聚焦ROS在移动机器人中的应用
- 班主任全程带班，助教批改作业，确保学习效果



### ROS理论与实践 (以移动机器人为例)

<http://www.shenlanxueyuan.com/course/168>

古月居  
— GYH.AI —

古月私房课

## ROS机械臂开发 从入门到实战

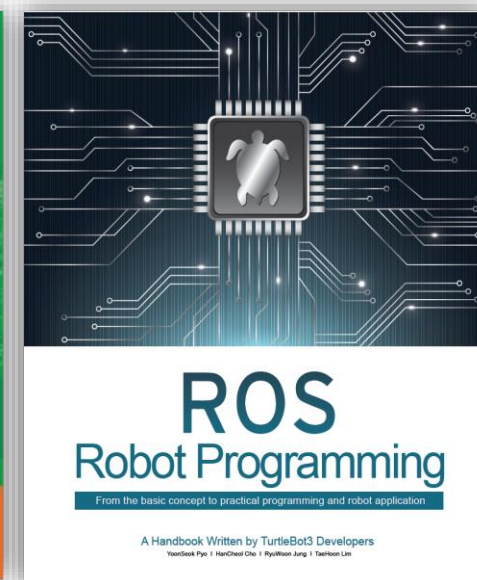
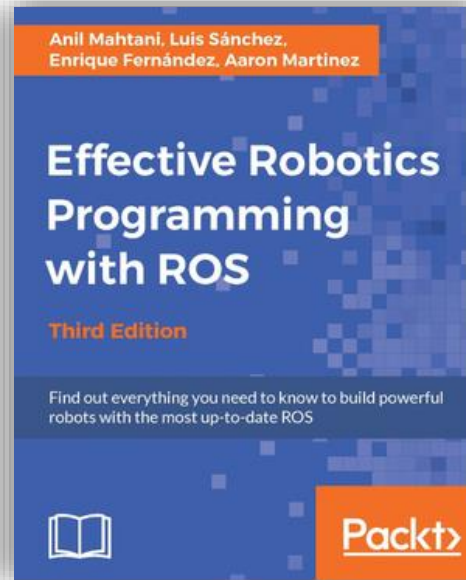
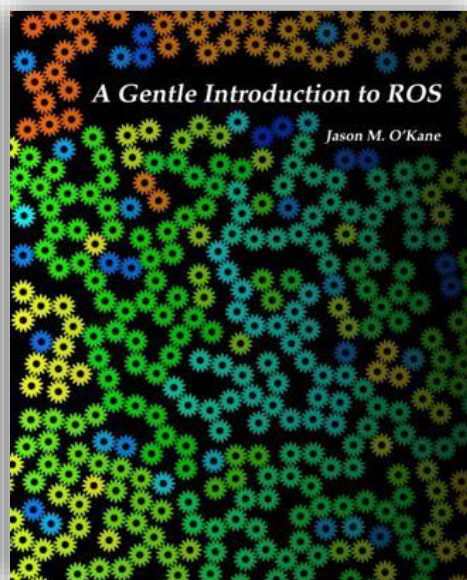
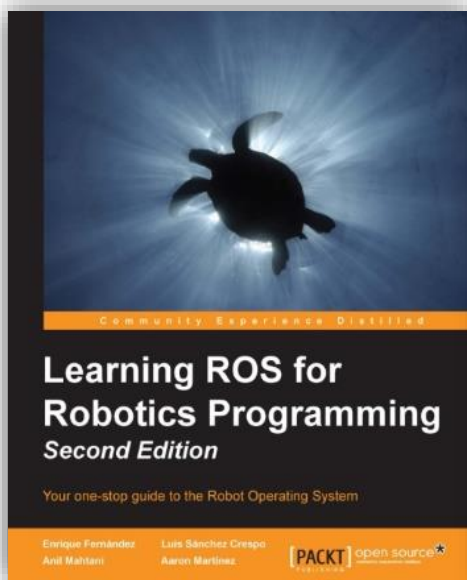
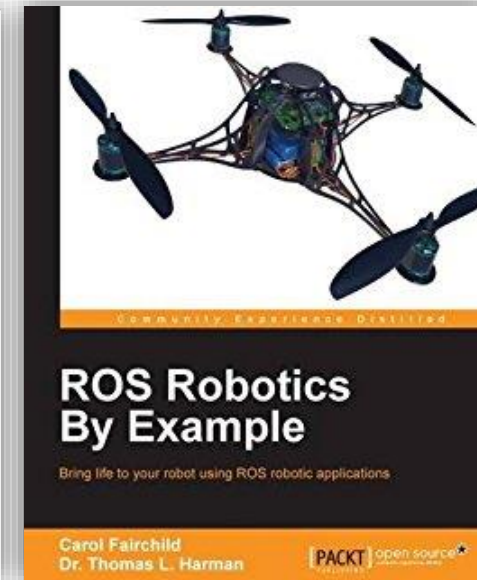
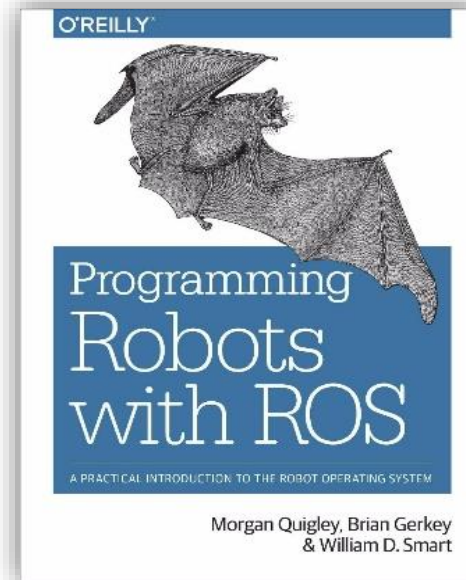
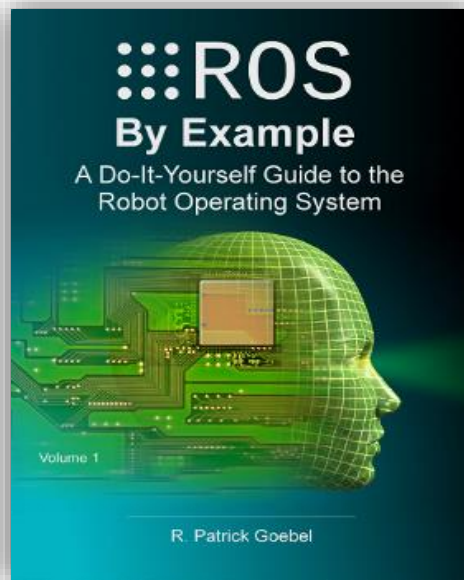
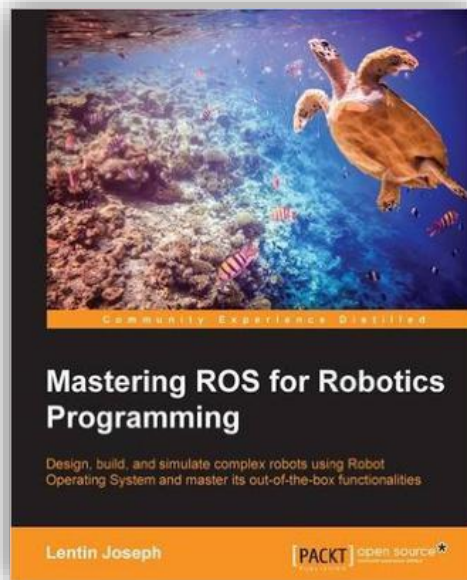
### ROS机械臂开发：从入门到实战

<http://www.shenlanxueyuan.com/course/154>

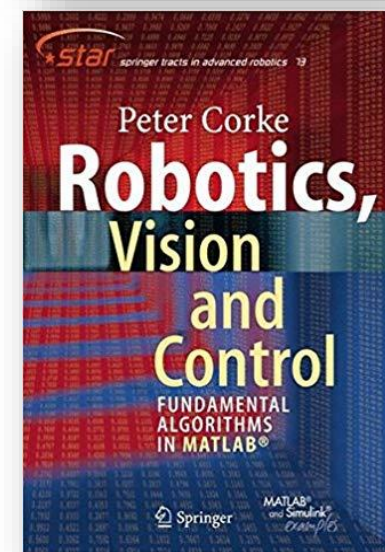
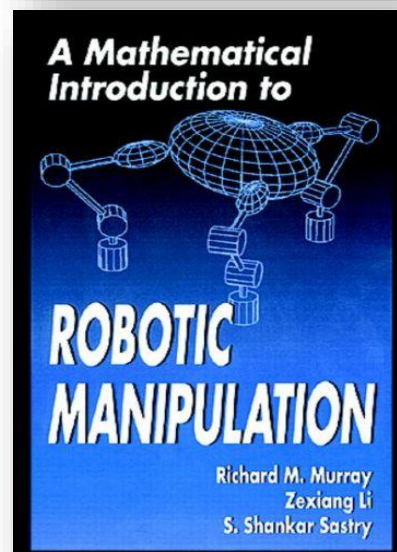
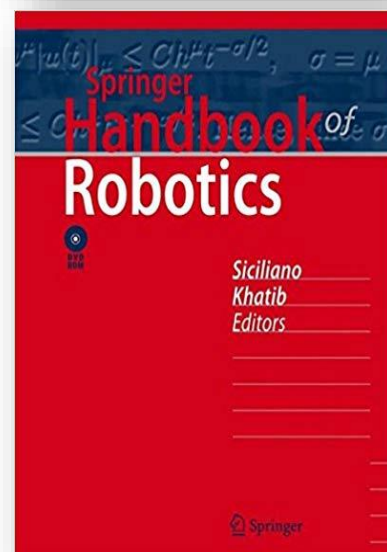
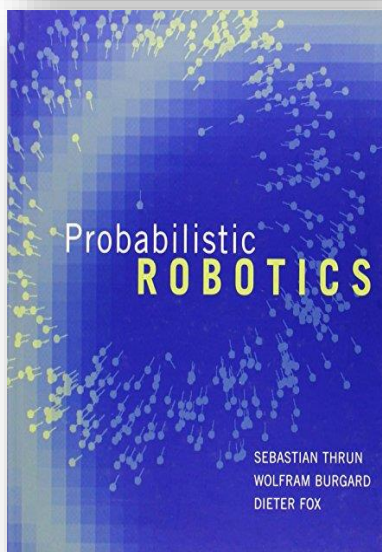
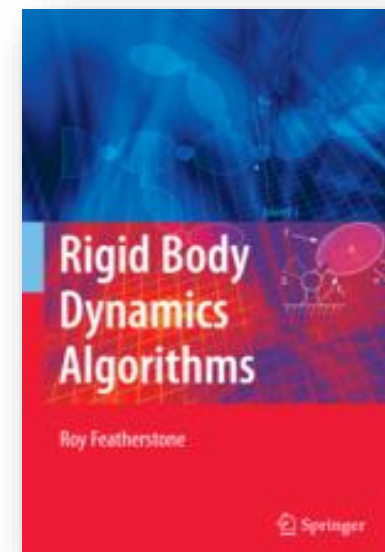
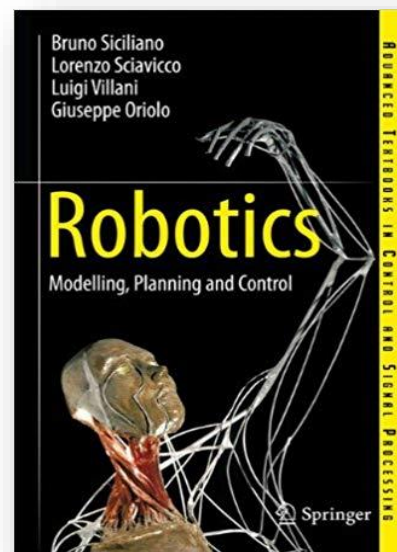
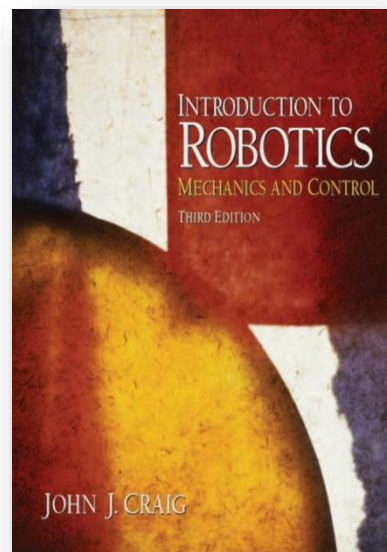
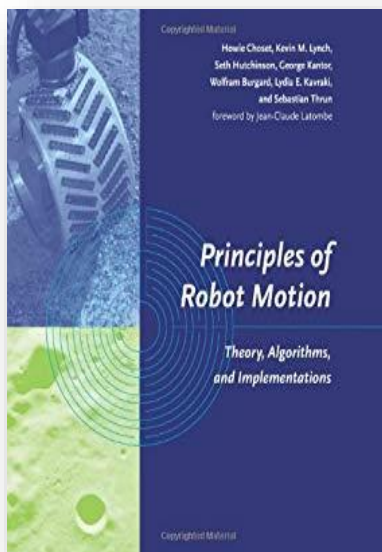
- ROS : <https://www.ros.org>
- ROS Wiki : <http://wiki.ros.org/>
- ROSCon 2012 ~ 2019 : <https://roscon.ros.org>
- ROS Robots : <https://robots.ros.org/>
- Ubuntu Wiki : <https://wiki.ubuntu.org.cn>
- 古月居 : <http://www.gyh.ai>
- zhangrelay的专栏 : <https://blog.csdn.net/ZhangRelay>
- 易科机器人实验室: <http://blog.exbot.net/>
- 开源机器人学学习指南: <https://github.com/qqfly/how-to-learn-robotics>



# ● 资源整理





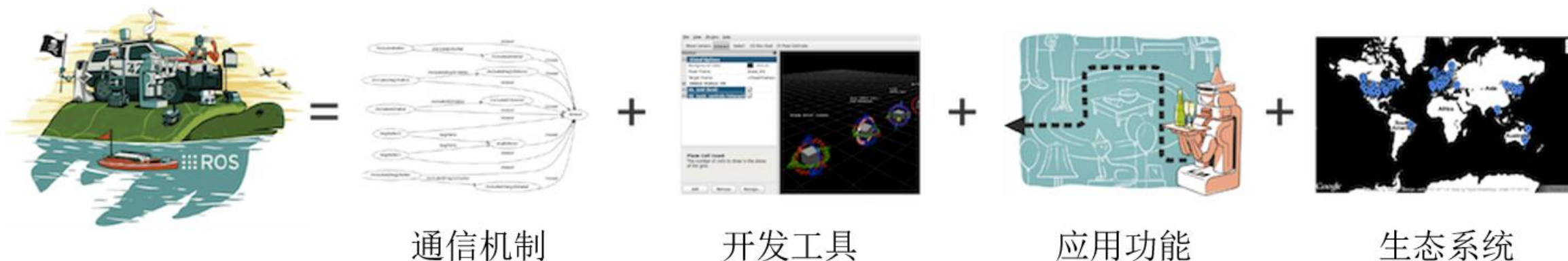


Google

 GitHub

 YouTube

 Bilibili



**ROS是一个工具，也是一种生活方式，  
但他并不完美，也不是机器人开发的全部**

**What is ROS?** The name “robot operating system” is arguably a misnomer. Defining ROS succinctly is difficult, since it encompasses myriad aspects, including style of programming (notably, relying on loosely-coupled, distributed nodes); interface definitions and paradigms for communications among nodes; interface definitions for incorporation of libraries and packages; a collection of tools for visualization, debugging, data logging and system diagnostics; a repository of shared source code; and bridges to multiple useful, independent open-source libraries. **ROS is thus more of a way of life for robot programmers than simply an operating system.** Definitions of ROS are drawn from the following sources.

From the ROS wiki (<http://wiki.ros.org/ROS/Introduction>):



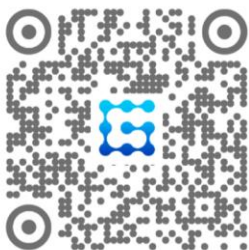
**怕什么真理无穷，进一寸有一寸的欢喜。**

**——胡适**

# 感谢观看

怕什么真理无穷，进一寸有一寸的欢喜

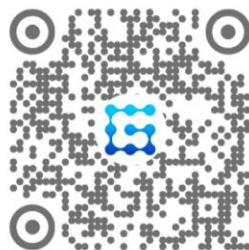
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