5_3 _ROS_DATA_INFORMATION – Mostly ROS1 FALL 2022

Contents

Welcome to the ROS Community

https://www.ros.org/blog/community/

The core ROS source code is built and maintained by Open Robotics and the members of the ROS 2 Technical Steering Committee (TSC); but much of what makes ROS so special is built by other groups within the ROS community.

Open Robotics

Open Robotics works with the global ROS community to create open software and hardware platforms for robotics including ROS 1, ROS 2, the Gazebo simulator, and the Ignition simulator. Open Robotics uses these platforms to solve important problems and help others to do the same by offering software and hardware development services for a variety of client organizations.

OTHER MEMBERS OF THE COMMUNITY

- **The Autoware Foundation – Self Driving**
- **F1 Tenth Race Cars, etc**
- **MoveIt**
  MoveIt is a set of ROS packages for forward and inverse kinematics and planning using ROS. https://moveit.ros.org/
- **OpenCV**
  OpenCV (Open Source Computer Vision Library) is an open source computer vision and machine learning software library.

- microROS
  micro-ROS is bridging the gap between resource-constrained microcontrollers and larger processors in robotic applications that are based on ROS. micro-ROS runs on a wide variety of embedded hardware and brings ROS closer to robot hardware.

- ROS-Industrial
  ROS-Industrial is an open-source project that extends the advanced capabilities of ROS software to industrial relevant hardware and applications. https://www.swri.org/ros-industrial

ROS PACKAGES MANY Many PAGES! Select ROS1 or ROS2 Distribution

https://index.ros.org/packages/

DOCUMENTATION

http://wiki.ros.org/

EXAMPLES

ROS Courses

http://wiki.ros.org/Courses

ROS Books

BOOKS 13/37 – just by Date not Quality

http://wiki.ros.org/Books ROS2 books – Not yet – A moving Target

ROS Robotics By Example - Second Edition (2017-12, K, Python)

Robots and Sensors – A Sampling- Search by Tag or Category – See 10 Year Montag of Robots.

https://robots.ros.org/

All types of Sensors:

http://wiki.ros.org/Sensors

1. Sensors supported by ROS
1. Portals
2. Complete Listing
1. 1D range finders
2. 2D range finders
3. 3D Sensors (range finders & RGB-D cameras)
4. Audio / Speech Recognition
5. Cameras
6. Enviromental
7. Force/Torque/Touch Sensors
8. Motion Capture
9. Pose Estimation (GPS/IMU)
10. Power Supply
11. RFID
12. Sensor Interfaces
13. Speed

TOOLS - RVIZ

http://wiki.ros.org/Tools

1. Tools
1. 3D Visualization: RVIZ
2. Webviz
3. Logging and Visualization Sensor Data: rosbag and rqt_bag
4. Live plotting: rqt_plot
5. System visualization: rqt_graph
6. Control & Visualization with Mobile Devices: ROS-Mobile
7. Command Line Tools
1. Running ROS Systems
2. Interacting with and debugging running system
3. Install, build and filesystem tools

LIBRARIES

libraries and simulators for Robot Operating System

Open-CV, PLC (PointCloud 3D), Open-NI (Cameras, Microsoft Kinect),

Open-Rave (Trajectory planning for manipulators)

Simulators: Gazebo, V-Ref

CORE ELEMENTS- APIs: ROS1 roscpp, rospy

http://wiki.ros.org/APIs

DISCUSSIONS-NEWS Blog Retired to ROS discourse

https://www.ros.org/news/ https://discourse.ros.org/

DON'T BE AFRAID TO ASK QUESTIONS – MOST OF THE TIMES

THE PROBLEMS ARE NOT PERSONAL!

https://answers.ros.org/questions/ 66069 questions

A GOOD HISTORY – Worth a Read

https://en.wikipedia.org/wiki/Robot_Operating_System

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I HAD TO STOP – SEE MORE ROS2 DOCUMENTATION LATER!