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Community Meetings x4

(Example topics)
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Growth

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Focused Technical Projects

Blending the community-driven, bottom-up approach with the industrial "contracted work", top-down one

- Yearly summer hours, parallel with the Industrial Workshop (which is _not_ now an RFP)

example of the RoP FTAs

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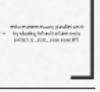

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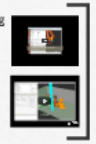

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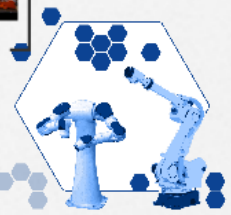

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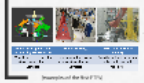

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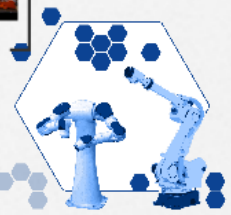

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[redacted]

- **ROS-Industrial - Accelerating Research to Applications**
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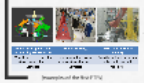

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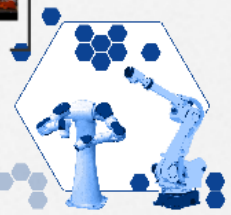

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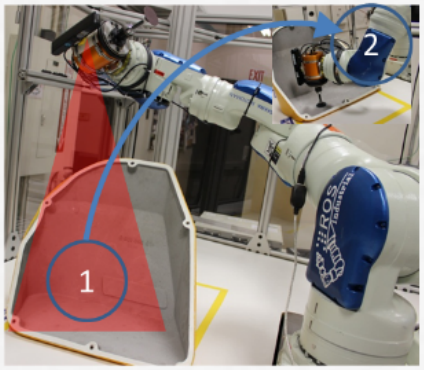

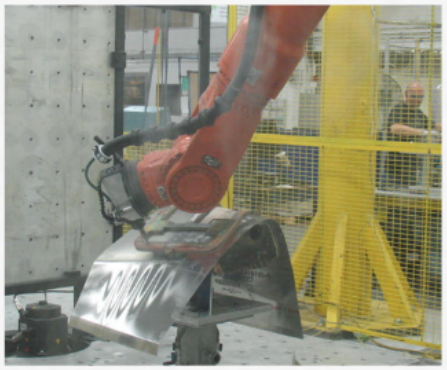

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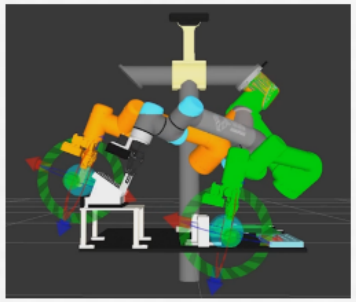

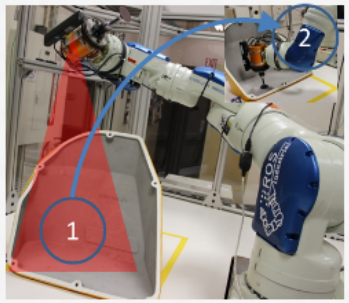

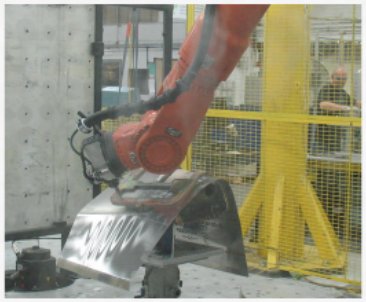

Path Planner Optimization and Planning Request Adptr.	Robotic Blending	CMM- Enabled Robotic Routing
Minimize cycle time for pick & place applications.	Macro-scan simple work pieces and plan tool paths	Scan the perimeter of legacy tooling; auto-gen paths
Complete	Complete	April Install

(examples of the first FTPs)

→ reduce unnecessary parallel work by sharing infrastructure costs (which is _not_ your core IP!)

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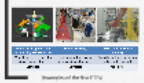

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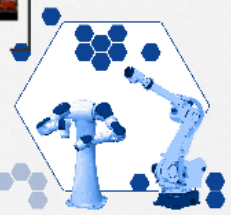

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ROS-I Conference, Fraunhofer IPA, June 26, 2014

RIC-EU Kickoff, June 27, 2014

IAS-13 Workshop: ROS-Industrial in European Research Projects, July 15, 2014

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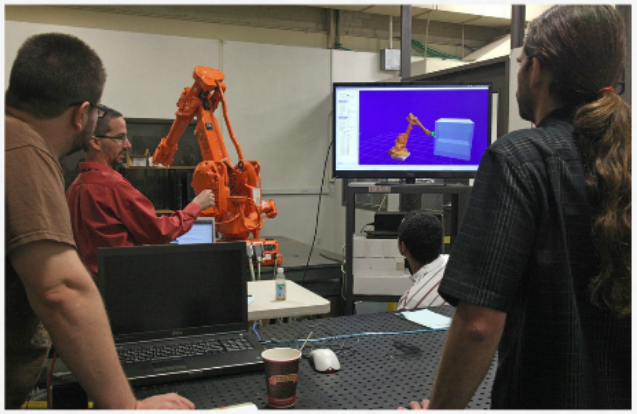

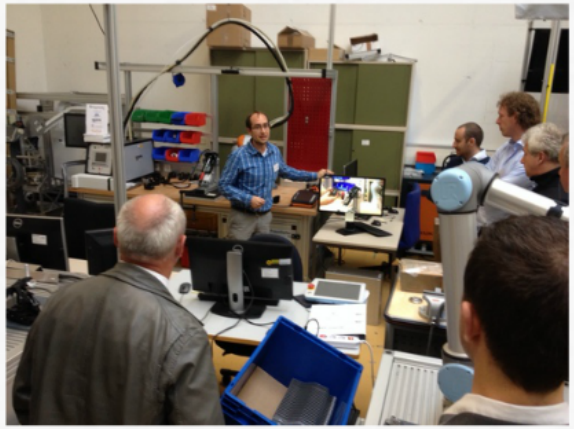

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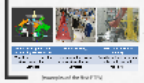

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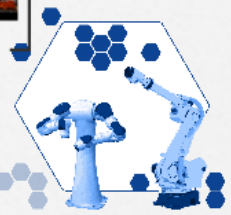

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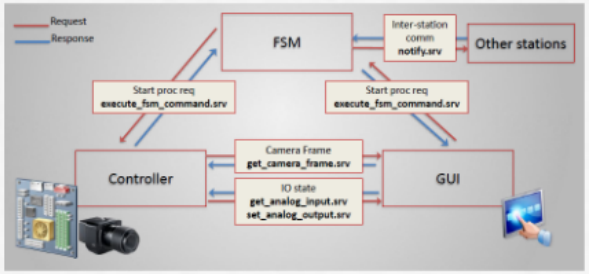

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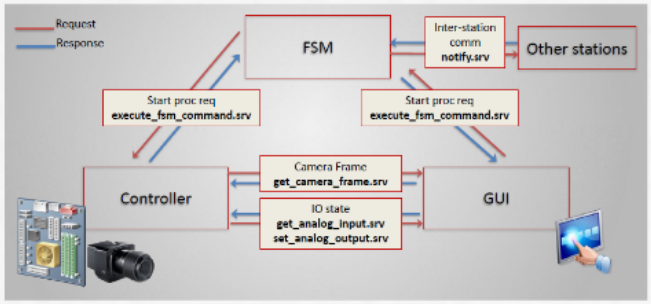

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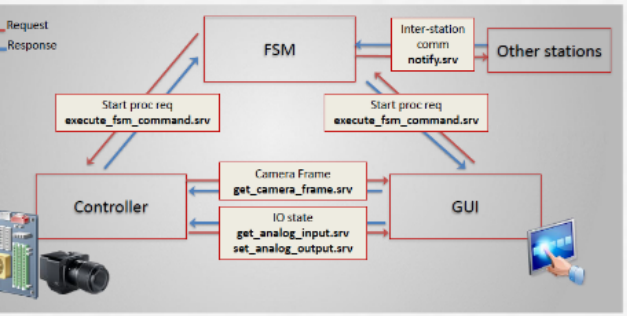

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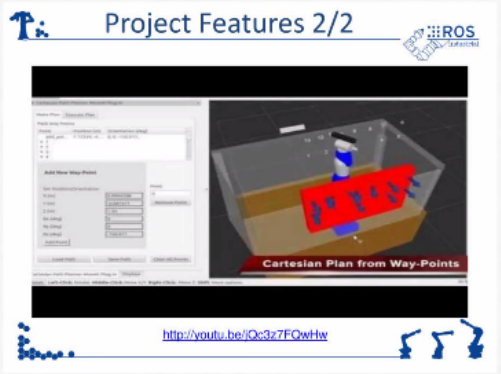

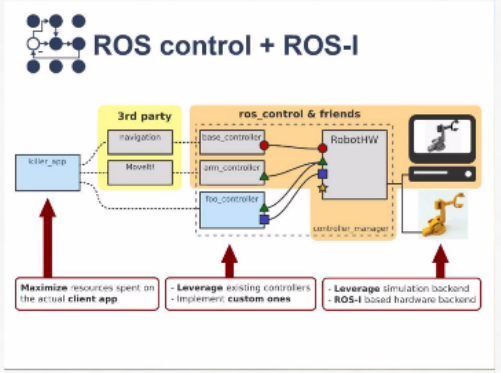

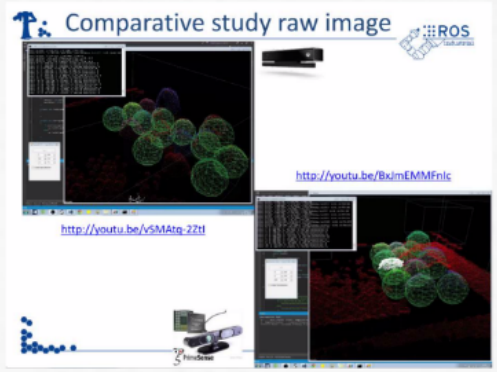

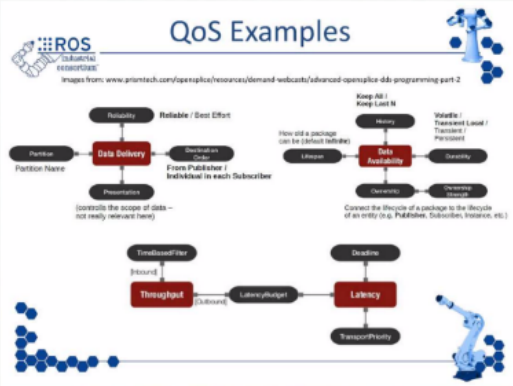

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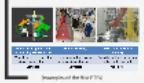

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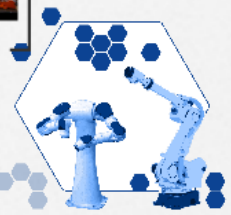

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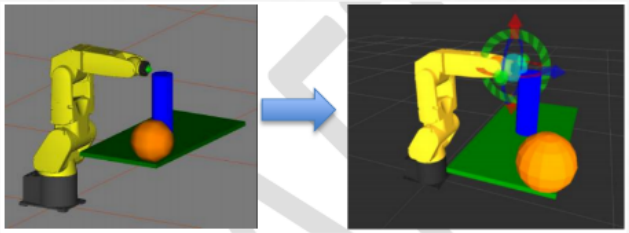

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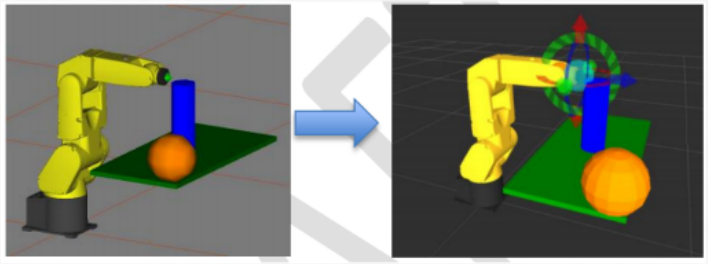

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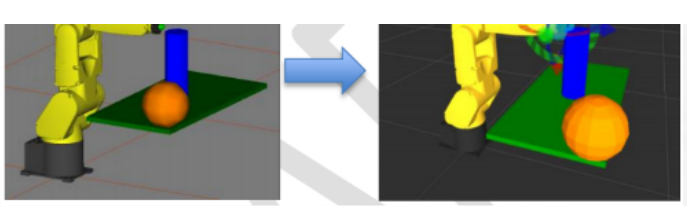

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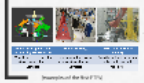

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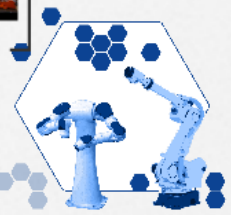

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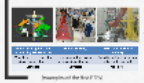

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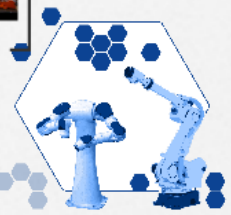

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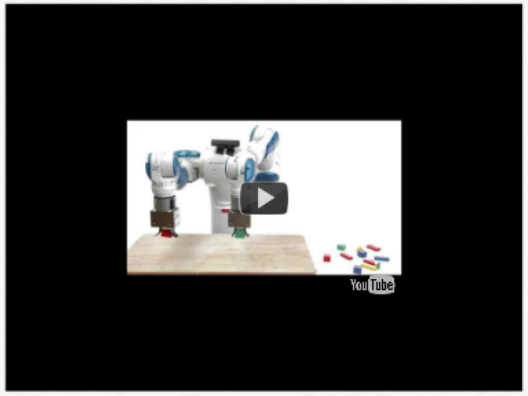

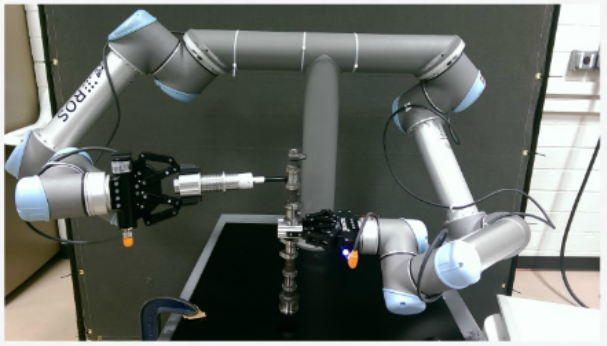

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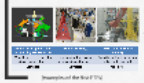

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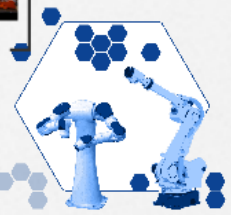

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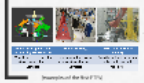

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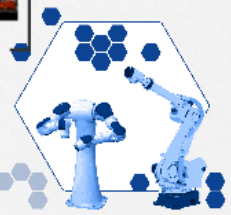

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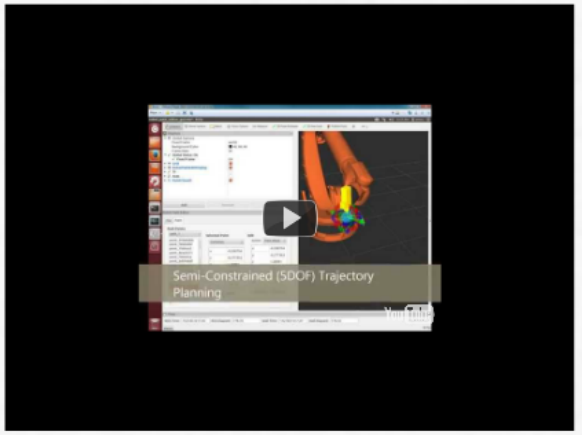

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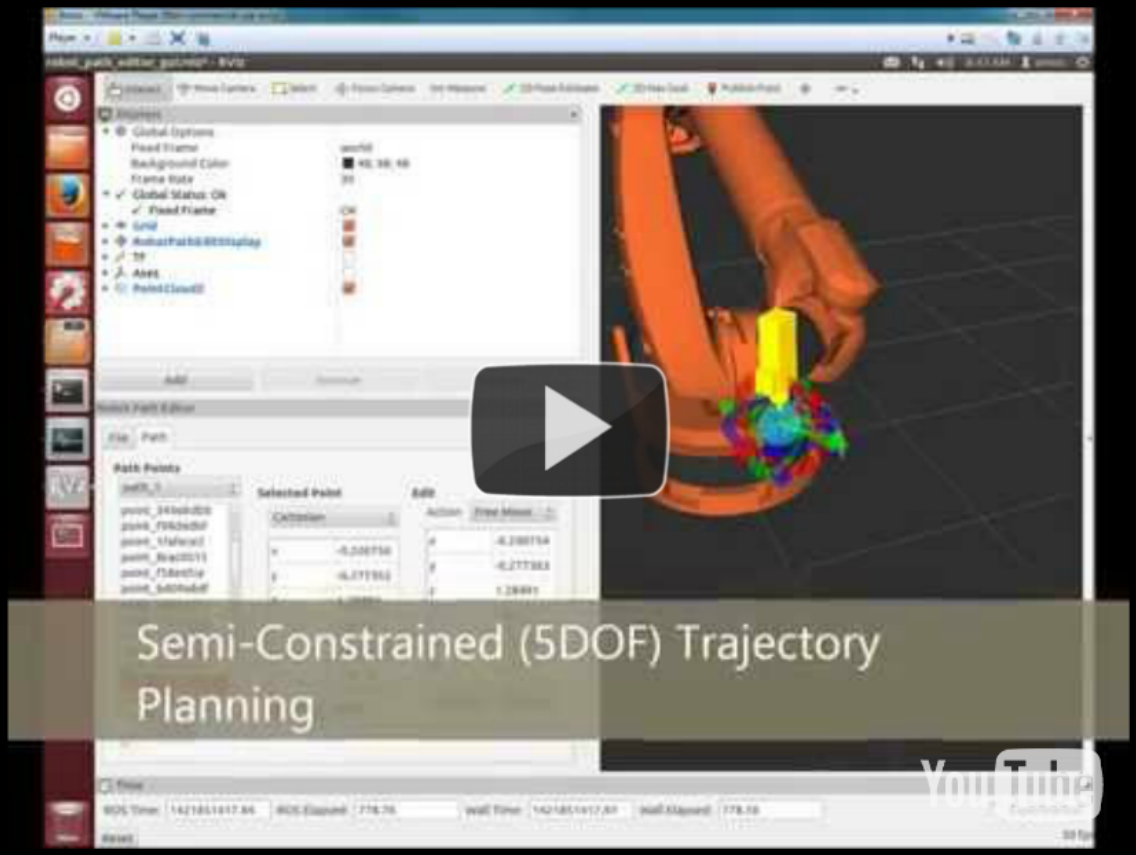

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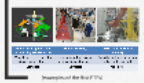

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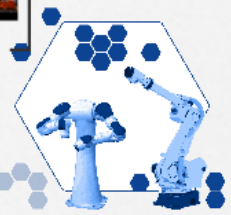

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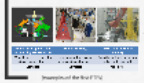

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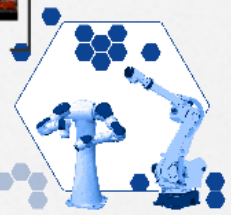

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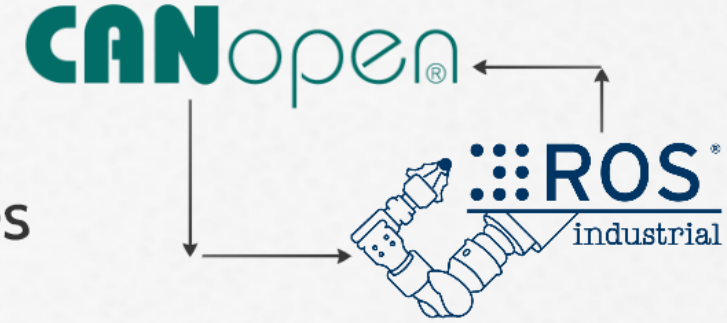

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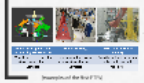

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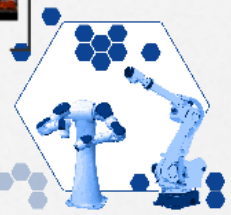

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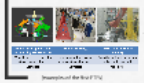

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2011 2012 2013 2014 2015 2016

Technical

Robot Support

- ABB, Adept, Fanuc, Motoman, Universal
- Maintained by SwRI, TU Delft, & Fraunhofer IPA
- Future additions
  - Kuka, Epson, Staubli, Ragnar(BlueWorkforce)

First ROS-I Demonstration

- PR2 pick & place performed with industrial hardware
- Cooperative effort between SwRI, Yaskawa Motoman, & Willow Garage
- Demonstrated software portability

Dual Arm Interfaces

- Dual arm Motoman SDA10F (Fraunofer IPA & Motoman)
- Dual arm UR - Hilgendorf (SwRI & NIST)

Calibration Toolbox

- General purpose calibration library (SwRI & NIST)
- Addresses
  - Robot to camera (Fixed)
  - Robot to camera (arm mounted)
  - Camera to camera (many)
- Latest additions
  - Streamlined intrinsic/extrinsic calibration
  - Templates for common use cases

Path Planning

- Develop path planners for industrial application
  - Repeatable
  - Scalable
  - Common sense plans
- Descartes semi-constrained cartesian path planner
- Resurrected STOMP planner

Mobile Manipulator

- Developed mobile manipulation platform for order fulfillment
- Standardized platform (Euler)

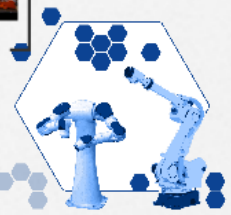
IO Network Support

- ROS support for CANOpen devices (Fraunhofer IPA)
  - Support for device profile for drives and motion control
  - Integrated in the ros-control framework
    - joint_state_controller
    - joint_trajectory_controller
    - position_controllers
    - velocity_controllers
- ROS PROFINet coming soon

CANopen

Scan & Plan

- Use 3D sensors to scan objects and intelligent planner to perform operations
- Utilizes multiple core technologies



ROSCon 2015

Prezi

ROS-I: We've been busy!

Prezi