

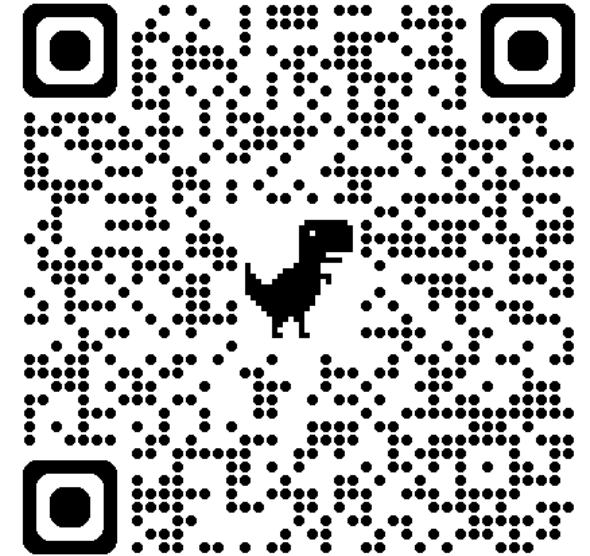
# MATLAB と ROS 2 連携

MathWorks Japan

アプリケーションエンジニアリング部

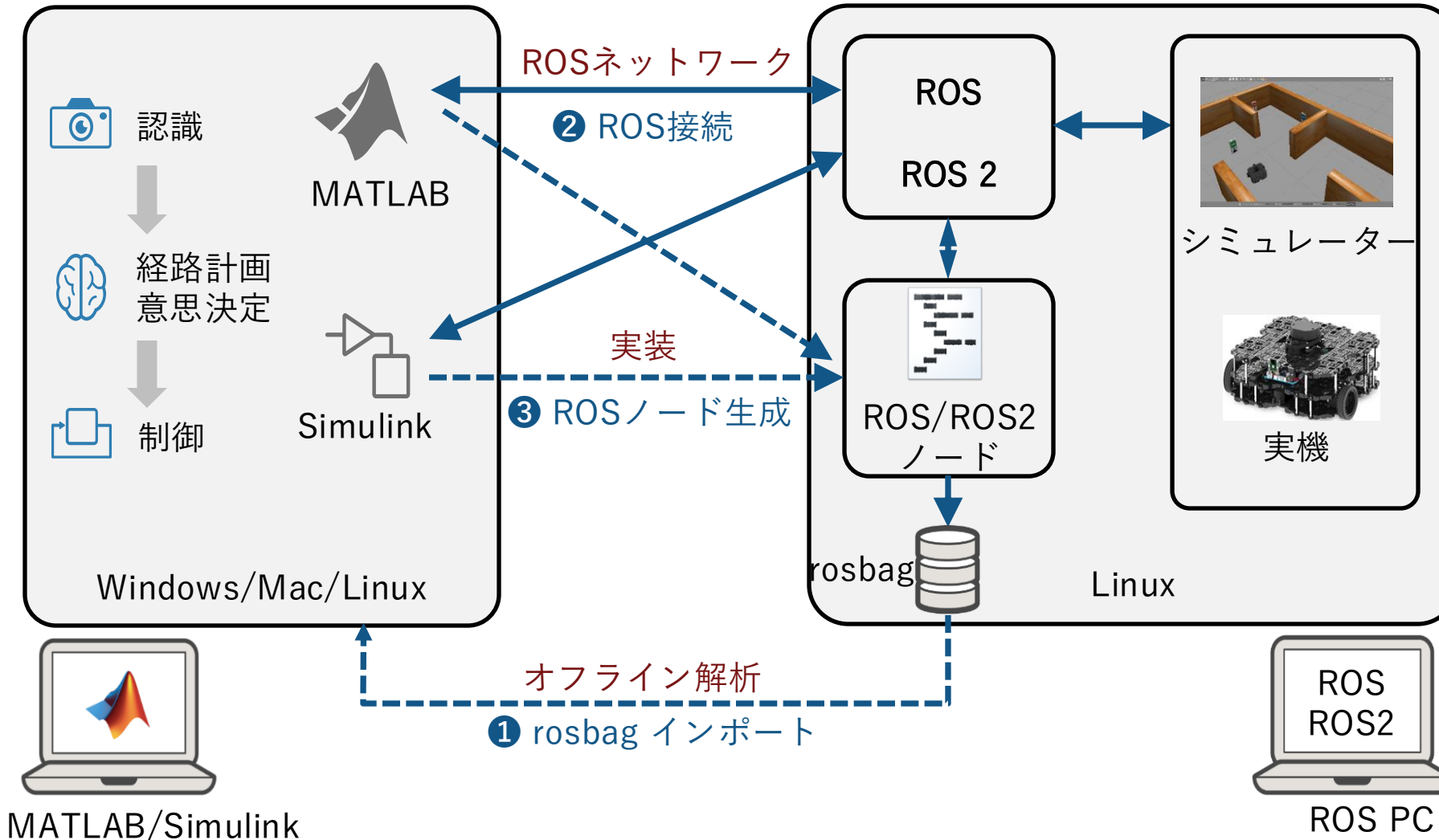
木川田 亘

詳細な資料↓

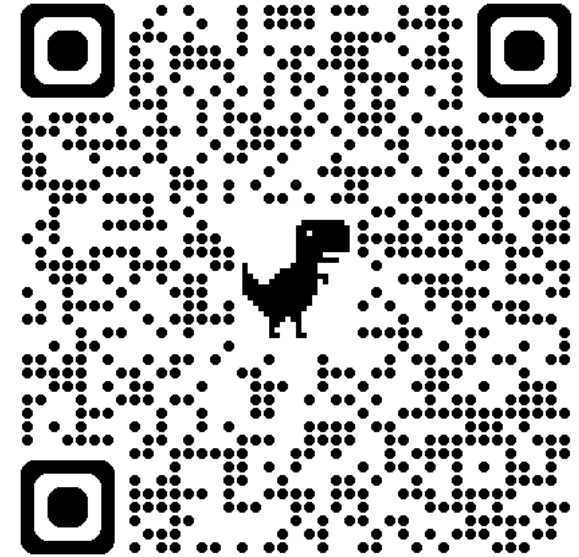


# ROS Toolbox : MATLAB/SimulinkとROSを連携

MATLABコードやSimulinkモデルを簡単にROS連携



詳細な資料↓

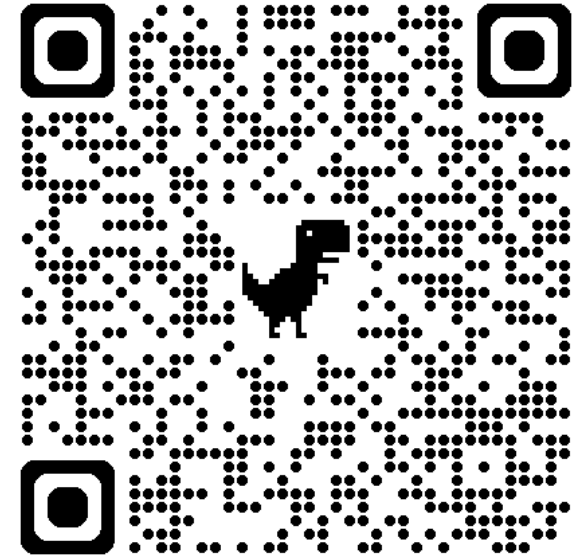


# ROS Toolbox の主な対応機能

## ROS 2 の主要な機能をサポート

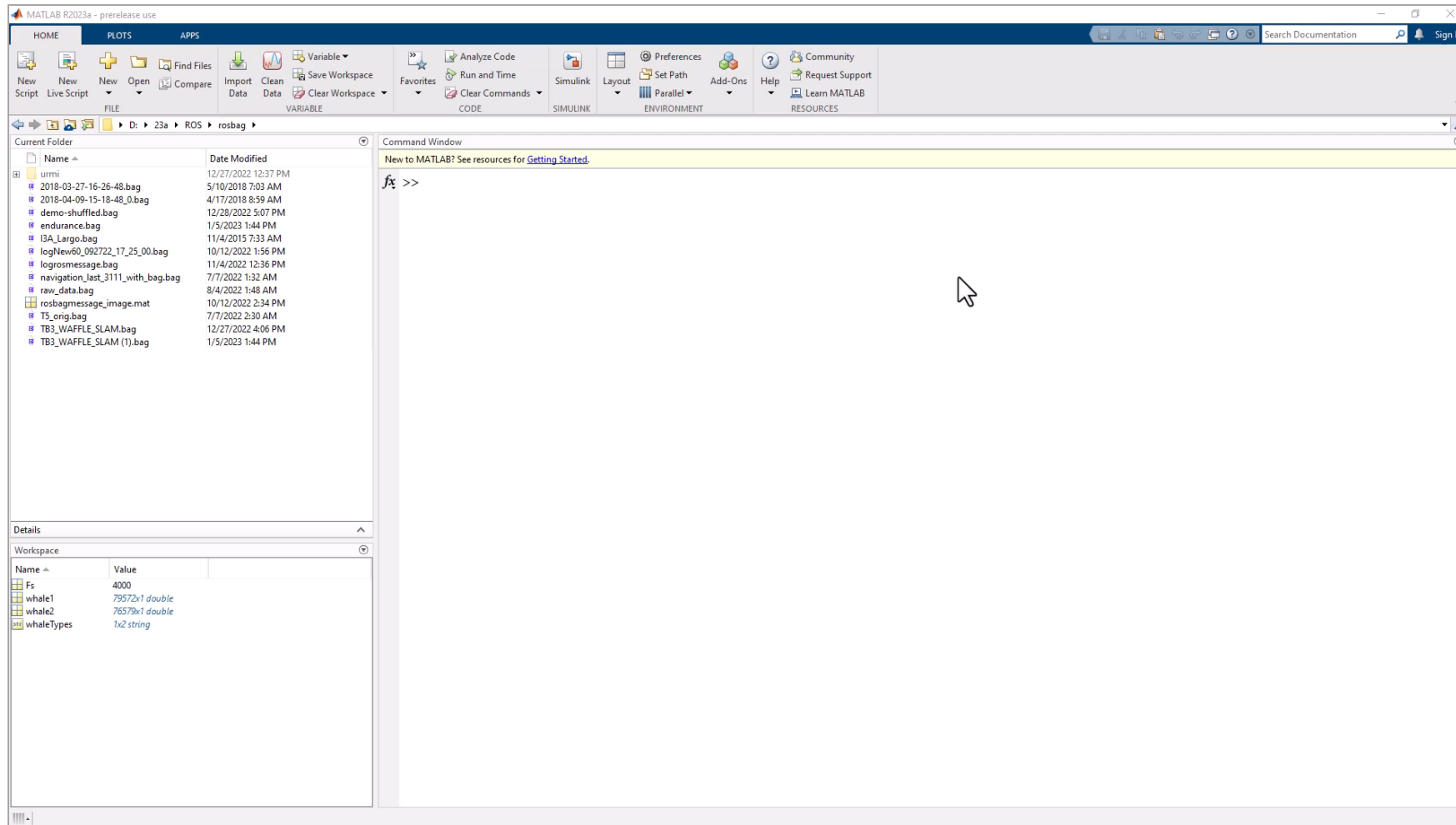
|                    | ROS   | ROS 2  |
|--------------------|---|--|
| <b>MATLAB</b>      | <ul style="list-style-type: none"> <li>• Topic – Publish / Subscribe</li> <li>• Service server, Service client</li> <li>• Action – Client / Server</li> <li>• Parameter – Get / Set</li> <li>• ROS TF</li> <li>• カスタムメッセージ</li> <li>• rosbag read, rosbag write</li> <li>• C++ ROSノード生成</li> <li>• CUDA ROSノード生成</li> </ul> | <ul style="list-style-type: none"> <li>• Topic – Publish / Subscribe</li> <li>• Service server, Service client</li> <li>• Action – Client / Server <b>R2023b</b></li> <li>• Parameter – Get / Set</li> <li>• ROS2 TF</li> <li>• カスタムメッセージ</li> <li>• ros2bag read, ros2bag write</li> <li>• C++ ROS2ノード生成</li> <li>• CUDA ROS2ノード生成</li> </ul> |
| <b>Simulink</b>    | <ul style="list-style-type: none"> <li>• Topic – Publish / Subscribe</li> <li>• Service – Call</li> <li>• Parameter – Get / Set</li> <li>• ROS Time</li> <li>• rosbag playback / record</li> <li>• ROSノード生成 (Local/Remote)</li> <li>• CUDA ROSノード生成</li> </ul>  | <ul style="list-style-type: none"> <li>• Topic – Publish / Subscribe</li> <li>• Service – Call / Server <b>R2024a</b></li> <li>• Action - Client <b>R2024a</b></li> <li>• Parameter – Get</li> <li>• ROS2 Time</li> <li>• ros2bag playback / record</li> <li>• ROS2ノード生成(Local/Remote)</li> <li>• CUDA ROS2ノード生成</li> </ul>                    |
| ROS<br>ディストリビューション | <ul style="list-style-type: none"> <li>• ROS Noetic</li> </ul>  | <ul style="list-style-type: none"> <li>• ROS2 Humble <b>R2023b</b></li> </ul>  |

詳細な資料↓

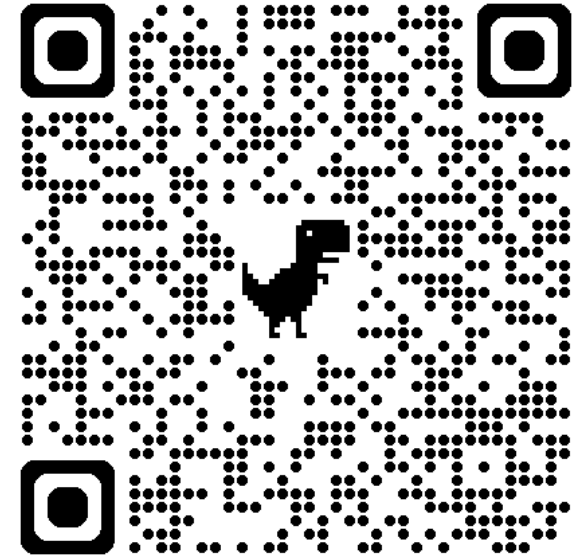


# ROSデータアナライザーアプリ

ROSのトピックやrosvizを容易に可視化



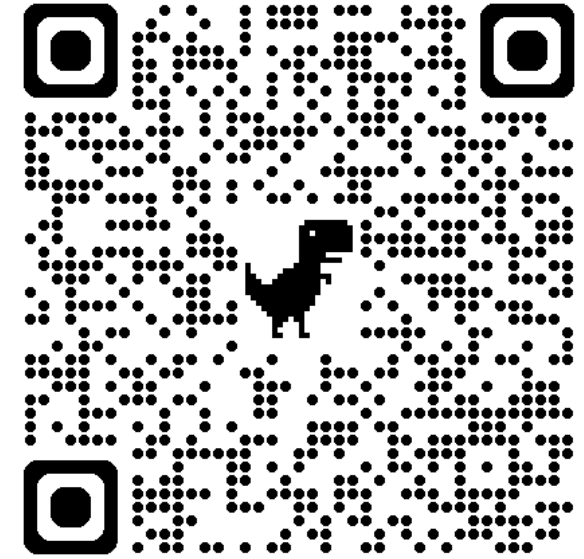
詳細な資料↓



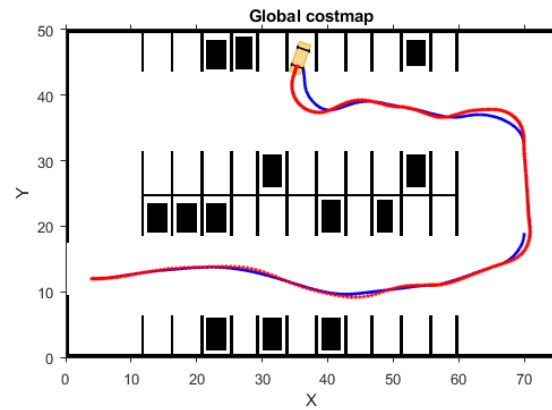
# 構築したアルゴリズムから自動コード生成

**package.xml** や **CMakeLists.txt** を自動生成

詳細な資料↓



## ROS 2 ノード生成

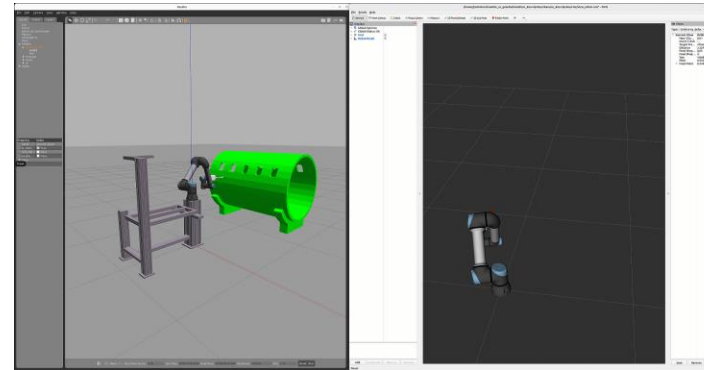


### [Automated Parking Valet with ROS 2 Simulink](#)

*ROS Toolbox, Simulink Coder, Embedded Coder*

## ros2\_control プラグイン生成

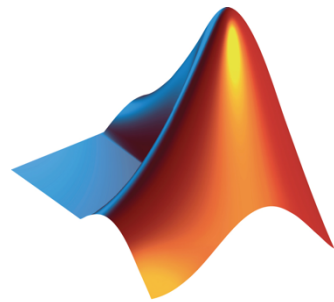
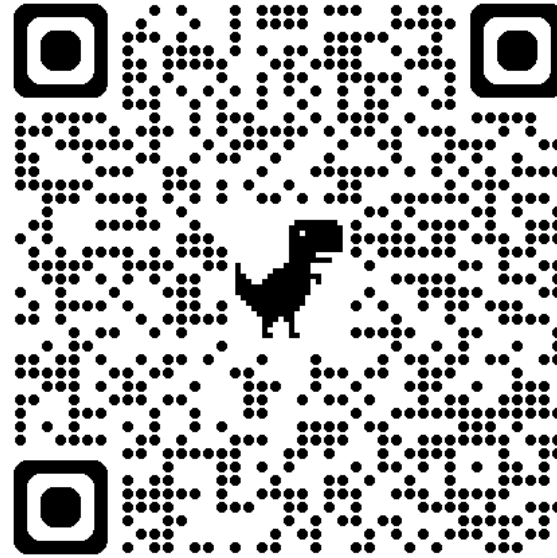
R2024b



### [Automated Generation and Deployment of ros2\\_control Plugin for Trajectory Controller](#)

*ROS Toolbox, Robotics System Toolbox, Computer Vision Toolbox, Simulink Coder*

詳細な資料↓



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