MathWorks Open-Sources a Complete Robotics Playbook for MATLAB and Simulink

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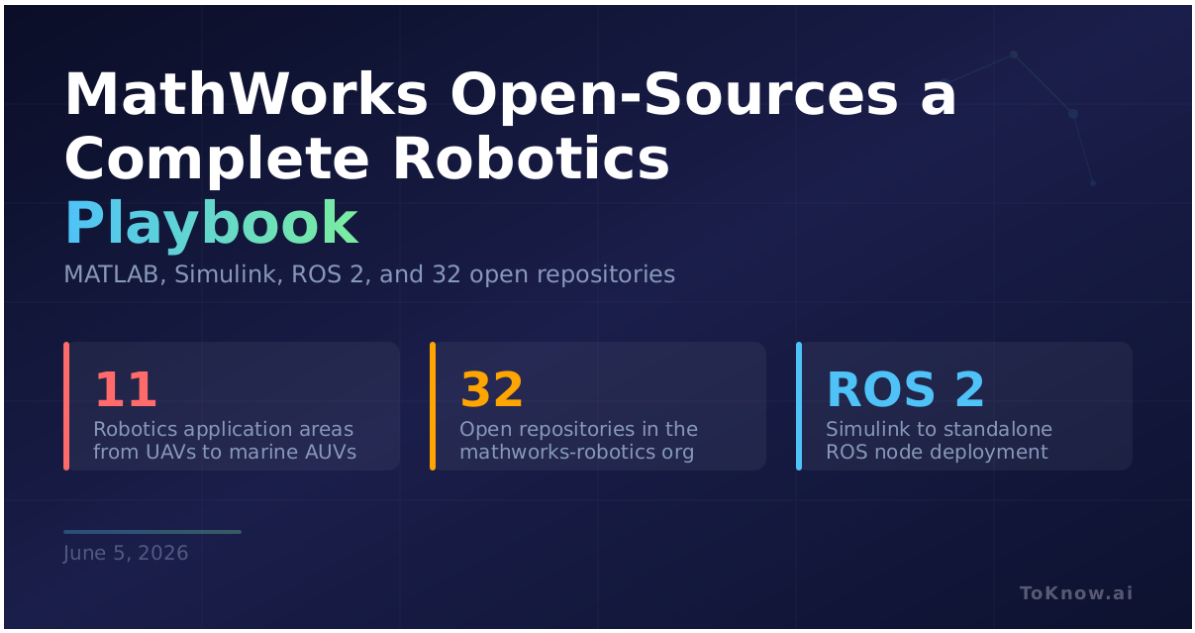

MathWorks maintains awesome-matlab-robotics, a curated index of demos, tutorials, and utilities covering 11 robotics application areas: ground vehicles, manipulation, legged locomotion, robot modeling, perception, SLAM, path planning, motion control, UAVs, marine/AUV systems, and automated driving. The mathworks-robotics GitHub organization hosts 32 open repositories backing these examples. Standout entries include an off-road navigation stack for

autonomous haul trucks in open-pit mines, a vineyard tractor navigation demo using Unreal Engine photorealistic simulation, and deep reinforcement learning controllers for quadruped locomotion. Every example ties into the Robotics System Toolbox, which handles inverse kinematics, collision checking, trajectory generation, and URDF model import. The collection also includes full ROS and ROS 2 tooling: you can design a control algorithm in Simulink and generate a standalone ROS node from it, deploy it to a Raspberry Pi, and co-simulate in Gazebo or Unreal Engine.

MATLAB and Simulink have long been industry standards in control systems and robotics research, but their commercial licensing put most of their example content behind a paywall. This collection changes that. A university team working on a warehouse robot can grab the mobile robotics simulation toolbox, add SLAM from the navigation examples, and wire it to a TurtleBot or Kinova arm using the hardware support packages, all without writing a ROS node by hand. A companion teaching-focused repository layers on beginner-to-advanced curriculum tied to the same tools.

With humanoid robots entering retail stores and autonomous vehicles multiplying on public roads, accessible robotics education has become a bottleneck. Open collections that connect theory to working hardware code, as covered in ZOZO's cloth physics release, help close that gap faster than textbooks alone.

Sources:

- Awesome MATLAB Robotics on GitHub
- Robotics System Toolbox Documentation
- ROS Toolbox for MATLAB and Simulink
- Awesome Robotics Teaching on GitHub
