

# Automated Driving Toolbox™

## Getting Started Guide



# MATLAB®

R2019a



# How to Contact MathWorks



Latest news: [www.mathworks.com](http://www.mathworks.com)  
Sales and services: [www.mathworks.com/sales\\_and\\_services](http://www.mathworks.com/sales_and_services)  
User community: [www.mathworks.com/matlabcentral](http://www.mathworks.com/matlabcentral)  
Technical support: [www.mathworks.com/support/contact\\_us](http://www.mathworks.com/support/contact_us)



Phone: 508-647-7000



The MathWorks, Inc.  
1 Apple Hill Drive  
Natick, MA 01760-2098

## *Automated Driving Toolbox™ Getting Started Guide*

© COPYRIGHT 2017–2019 by MathWorks, Inc

The software described in this document is furnished under a license agreement. The software may be used or copied only under the terms of the license agreement. No part of this manual may be photocopied or reproduced in any form without prior written consent from The MathWorks, Inc.

FEDERAL ACQUISITION: This provision applies to all acquisitions of the Program and Documentation by, for, or through the federal government of the United States. By accepting delivery of the Program or Documentation, the government hereby agrees that this software or documentation qualifies as commercial computer software or commercial computer software documentation as such terms are used or defined in FAR 12.212, DFARS Part 227.72, and DFARS 252.227-7014. Accordingly, the terms and conditions of this Agreement and only those rights specified in this Agreement, shall pertain to and govern the use, modification, reproduction, release, performance, display, and disclosure of the Program and Documentation by the federal government (or other entity acquiring for or through the federal government) and shall supersede any conflicting contractual terms or conditions. If this License fails to meet the government's needs or is inconsistent in any respect with federal procurement law, the government agrees to return the Program and Documentation, unused, to The MathWorks, Inc.

### **Trademarks**

MATLAB and Simulink are registered trademarks of The MathWorks, Inc. See [www.mathworks.com/trademarks](http://www.mathworks.com/trademarks) for a list of additional trademarks. Other product or brand names may be trademarks or registered trademarks of their respective holders.

### **Patents**

MathWorks products are protected by one or more U.S. patents. Please see [www.mathworks.com/patents](http://www.mathworks.com/patents) for more information.

### **Revision History**

March 2017	Online only	New for Version 1.0 (Release 2017a)
September 2017	Online only	Revised for Version 1.1 (Release 2017b)
March 2018	Online only	Revised for Version 1.2 (Release 2018a)
September 2018	Online only	Revised for Version 1.3 (Release 2018b)
March 2019	Online only	Revised for Version 2.0 (Release 2019a)

<b>1</b>	<b>Introduction to Automated Driving Toolbox</b>	
	<b>Automated Driving Toolbox Product Description . . . . .</b>	<b>1-2</b>



# Introduction to Automated Driving Toolbox

---

## **Automated Driving Toolbox Product Description**

### **Design, simulate, and test ADAS and autonomous driving systems**

Automated Driving Toolbox provides algorithms and tools for designing, simulating, and testing ADAS and autonomous driving systems. You can design and test vision and lidar perception systems, as well as sensor fusion, path planning, and vehicle controllers. Visualization tools include a bird's-eye-view plot and scope for sensor coverage, detections and tracks, and displays for video, lidar, and maps. The toolbox lets you import and work with HERE HD Live Map data and OpenDRIVE® road networks.

Using the Ground Truth Labeler app, you can automate the labeling of ground truth to train and evaluate perception algorithms. For hardware-in-the-loop (HIL) and desktop simulation of sensor fusion, path planning, and control logic, you can generate and simulate driving scenarios and radar and camera sensor outputs.

Automated Driving Toolbox provides reference application examples for common ADAS and automated driving features, including FCW, AEB, ACC, LKA, and parking valet. The toolbox supports C/C++ code generation for rapid prototyping and HIL testing, with support for sensor fusion, tracking, path planning, and vehicle controller algorithms.