

# Navigation Toolbox™

## Getting Started Guide



# MATLAB® & SIMULINK®

R2020a



# 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

*Navigation Toolbox™ Getting Started Guide*

© COPYRIGHT 2019–2020 by The 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

September 2019	Online only	New for Version 1.0 (R2019b)
March 2020	Online only	Rereleased for Version 1.1 (R2020a)

<b>1</b>	<b>Product Overview</b>	
	.....	<b>1-1</b>
	Navigation Toolbox Product Description .....	<b>1-1</b>



# Product Overview

---

## **Navigation Toolbox Product Description**

**Design, simulate, and deploy algorithms for planning and navigation**

Navigation Toolbox™ provides algorithms and analysis tools for designing motion planning and navigation systems. The toolbox contains customizable search and sampling-based path-planners. It also contains sensor models and algorithms for multi-sensor pose estimation. You can create 2D and 3D map representations using your own data or generate maps using the simultaneous localization and mapping (SLAM) algorithms included in the toolbox. Reference examples are provided for self-driving and robotics applications.

You can generate metrics for comparing path optimality, smoothness, and performance benchmarks. The SLAM map builder app lets you interactively visualize and debug map generation. You can test your algorithms by deploying them directly to hardware (with MATLAB® Coder™ or Simulink® Coder).

