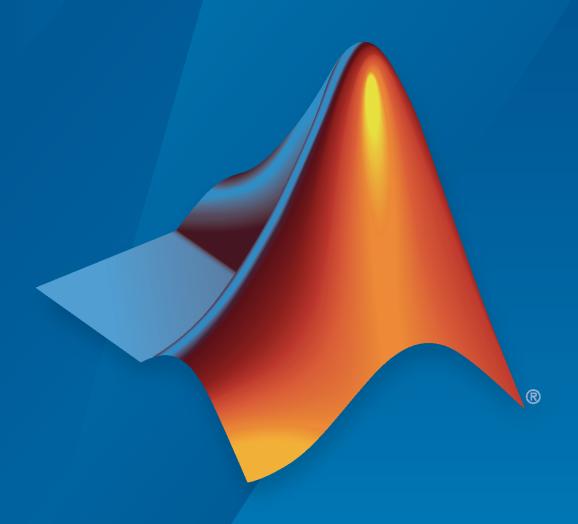
### **Radar Toolbox**

Getting Started Guide



# MATLAB&SIMULINK®



### **How to Contact MathWorks**



Latest news: www.mathworks.com

Sales and services: www.mathworks.com/sales\_and\_services

User community: www.mathworks.com/matlabcentral

Technical support: www.mathworks.com/support/contact\_us

7

Phone: 508-647-7000



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

Radar Toolbox Getting Started Guide

© COPYRIGHT 2021 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 for a list of additional trademarks. Other product or brand names may be trademarks or registered trademarks of their respective holders.

#### Patents

 $\label{lem:mathworks} \mbox{MathWorks products are protected by one or more U.S. patents. Please see {\tt www.mathworks.com/patents} \mbox{ for more information.}$ 

### **Revision History**

March 2021 Online only New for Version 1.0 (R2021a)
September 2021 Online only Revised for Version 1.1 (R2021b)

## Contents

1 [	Getting Started with Radar Toolbox Software					
	Radar Toolbox Product Description					
<b>2</b> [	Radar Systems					

# **Getting Started with Radar Toolbox Software**

### **Radar Toolbox Product Description**

### Design, simulate, and test multifunction radar systems

Radar Toolbox includes algorithms and tools for designing, simulating, analyzing, and testing multifunction radar systems. Reference examples provide a starting point for implementing airborne, ground-based, shipborne, and automotive radar systems. Radar Toolbox supports multiple workflows, including requirements analysis, design, deployment, and field data analysis.

You can perform link budget analysis and evaluate design trade-offs at the radar equation level interactively with the Radar Designer app. The toolbox includes models for transmitters, receivers, propagation channels, targets, jammers, and clutter. You can simulate radars at different levels of abstraction using probabilistic models and I/Q signal level models. You can process detections generated from these models or from data collected from radar systems using the signal and data processing algorithms provided in the toolbox. You can design cognitive radars that operate in crowded RF shared spectrum environments. For automotive applications, the toolbox lets you model radar sensors at the probabilistic and physics-based levels and simulate data, including micro-Doppler signatures and object lists.

For simulation acceleration or rapid prototyping, the toolbox supports C code generation.

## **Radar Systems**

"Modeling Radar Detectability Factors" "Modeling the Propagation of Radar Signals" "Modeling Target Radar Cross Section" "Simulate a Scanning Radar" "Radar Scenario Tutorial" "Model Platform Motion Using Trajectory Objects"