

AS ISO/IEC 22989:2023  
ISO/IEC 22989:2022



STANDARDS  
Australia



# Information technology — Artificial intelligence — Artificial intelligence concepts and terminology



## AS ISO/IEC 22989:2023

This Australian Standard ® was prepared by IT-043, Artificial Intelligence. It was approved on behalf of the Council of Standards Australia on 04 August 2023.

This Standard was published on 25 August 2023.

The following are represented on Committee IT-043:

- Australian Chamber of Commerce and Industry
- Australian Computer Society
- Australian Healthcare and Hospitals Association
- Australian Human Rights Commission
- Australian Information Industry Association
- Australian Institute of Company Directors
- Australian Institute of Health & Safety
- Australian Securities and Investments Commission
- CHOICE
- Consult Australia
- Consumers Federation of Australia
- Data61 (CSIRO)
- Engineers Australia
- Ethics, AI and ADM Professional Group
- National Association of Testing Authorities Australia
- NSW Data Analytics Centre
- Queensland AI Hub
- The Royal Australian and New Zealand College of Radiologists
- Therapeutic Goods Administration (TGA)
- University of Melbourne
- University of New South Wales
- University of Technology Sydney
- Western Sydney University

This Standard was issued in draft form for comment as DR AS ISO/IEC 22989:2023.

### **Keeping Standards up-to-date**

Ensure you have the latest versions of our publications and keep up-to-date about Amendments, Rulings, Withdrawals, and new projects by visiting:

[www.standards.org.au](http://www.standards.org.au)

# **Information technology — Artificial intelligence — Artificial intelligence concepts and terminology**

First published as AS ISO/IEC 22989:2023.

© ISO/IEC 2023 — All rights reserved  
© Standards Australia Limited 2023

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher, unless otherwise permitted under the Copyright Act 1968 (Cth).

## Preface

This Standard was prepared by the Standards Australia Committee IT-043, Artificial Intelligence.

The objective of this document is to establish terminology for AI and describe concepts in the field of AI.

This document is identical with, and has been reproduced from, ISO/IEC 22989:2022, *Information technology — Artificial intelligence — Artificial intelligence concepts and terminology*.

As this document has been reproduced from an International document, a full point substitutes for a comma when referring to a decimal marker.

Australian or Australian/New Zealand Standards that are identical adoptions of international normative references may be used interchangeably. Refer to the online catalogue for information on specific Standards.

The terms “normative” and “informative” are used in Standards to define the application of the appendices or annexes to which they apply. A “normative” appendix or annex is an integral part of a Standard, whereas an “informative” appendix or annex is only for information and guidance.

# Contents

<b>Preface</b>	<b>ii</b>
<b>Foreword</b>	<b>vi</b>
<b>Introduction</b>	<b>vii</b>
<b>1 Scope</b>	<b>1</b>
<b>2 Normative references</b>	<b>1</b>
<b>3 Terms and definitions</b>	<b>1</b>
3.1 Terms related to AI	1
3.2 Terms related to data	6
3.3 Terms related to machine learning	8
3.4 Terms related to neural networks	10
3.5 Terms related to trustworthiness	11
3.6 Terms related to natural language processing	13
3.7 Terms related to computer vision	16
<b>4 Abbreviated terms</b>	<b>16</b>
<b>5 AI concepts</b>	<b>17</b>
5.1 General	17
5.2 From strong and weak AI to general and narrow AI	17
5.3 Agent	17
5.4 Knowledge	18
5.5 Cognition and cognitive computing	19
5.6 Semantic computing	19
5.7 Soft computing	19
5.8 Genetic algorithms	19
5.9 Symbolic and subsymbolic approaches for AI	19
5.10 Data	20
5.11 Machine learning concepts	21
5.11.1 Supervised machine learning	21
5.11.2 Unsupervised machine learning	21
5.11.3 Semi-supervised machine learning	22
5.11.4 Reinforcement learning	22
5.11.5 Transfer learning	22
5.11.6 Training data	22
5.11.7 Trained model	22
5.11.8 Validation and test data	22
5.11.9 Retraining	23
5.12 Examples of machine learning algorithms	24
5.12.1 Neural networks	24
5.12.2 Bayesian networks	25
5.12.3 Decision trees	25
5.12.4 Support vector machine	25
5.13 Autonomy, heteronomy and automation	26
5.14 Internet of things and cyber-physical systems	27
5.14.1 General	27
5.14.2 Internet of things	27
5.14.3 Cyber-physical systems	27
5.15 Trustworthiness	28
5.15.1 General	28
5.15.2 AI robustness	28
5.15.3 AI reliability	29
5.15.4 AI resilience	29
5.15.5 AI controllability	29
5.15.6 AI explainability	29

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

- 
- Looking for additional Standards? Visit Intertek Inform Infostore
  - Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation
-