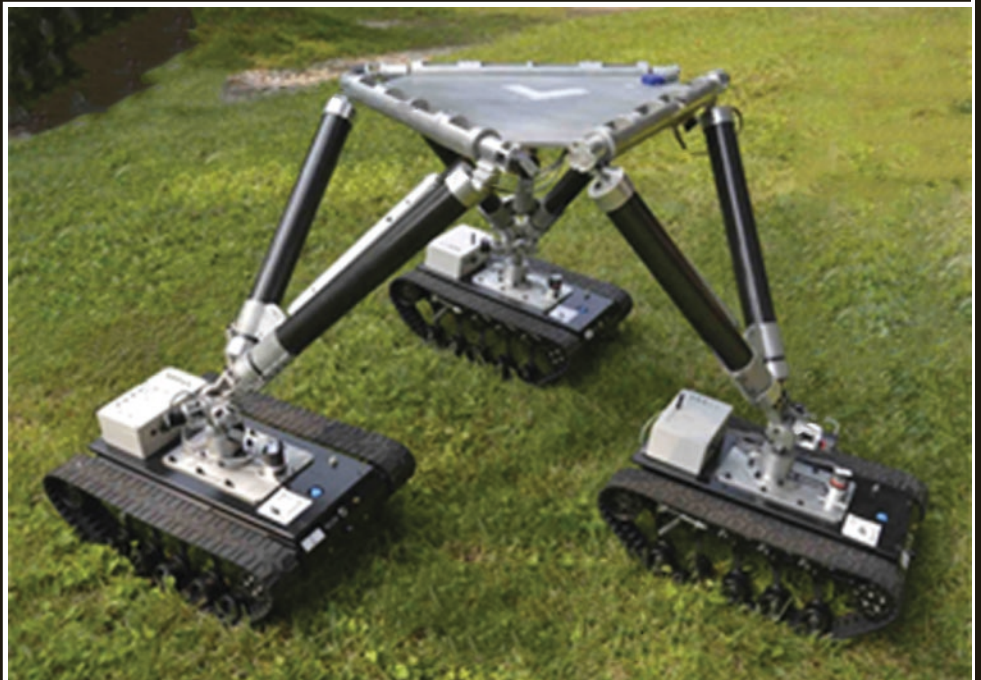


Volume **39** Part **6**

ROBOTICA



[cambridge.org/rob](https://www.cambridge.org/rob)

CAMBRIDGE
UNIVERSITY PRESS

ISSN 0263-5747

Downloaded from <https://www.cambridge.org/core>. IP address: 34.223.82.127, on 12 May 2021 at 14:39:38, subject to the Cambridge Core terms of use, available at <https://www.cambridge.org/core/terms>. <https://doi.org/10.1017/S0263574721000540>

ROBOTICA

An IFAC-Affiliated Journal, and an
Official Journal of the IFR.

International Journal of Information, Education and Research
in Robotics and Artificial Intelligence

EDITORS

Professor Jian S. Dai, *Centre for Robotics Research, King's College London, United Kingdom*

E-mail: jian.dai@kcl.ac.uk

Professor Giuseppe Carbone, *Department of Mechanical, Energy and Management Engineering, University of Calabria, Rende, Italy*

E-mail: giuseppe.carbone@unical.it

FOUNDING EDITOR

Professor J. Rose, (UK)

EDITORIAL BOARD

Professor Srinivas Akella, *University of North Carolina at Charlotte, USA*
Dr G.K. Ananthasuresh, *The Indian Institute of Science, Bangalore, India*

Dr Panos Artemiadis, *University of Delaware, USA*

Professor Nikos A. Aspragathos, *University of Patras, Patras, Greece*

Professor Xilun Ding, *Beihang University, China*

Professor Eduardo Jose Bayro-Corrochano, *CINVESTAV, Campus Guadalajara, Jalisco, Mexico*

Professor Thomas Bock, *Technical University of Munich, Germany*

Associate Professor Mehmet İsmet Can Dede, *Izmir Institute of Technology, Turkey*

Professor Angelo Cangelosi, *University of Manchester, UK*

Professor I-Ming Chen, *Nanyang Technological University, Singapore*

Professor Howie Choset, *Carnegie Mellon University, Pittsburgh, USA*

Assistant Professor Dongming Gan, *Purdue University, USA*

Professor Feng Gao, *Shanghai Jiao Tong University, China*

Professor Victor A. Glazunov, *Mechanical Engineering Research Institute of the Russian Academy of Sciences (IMASH RAN), Russia*

Professor Clément Gosselin, *Laval University, Canada*

Professor Alessandro Gasparetto, *University of Udine, Italy*

Dr Ambarish Goswami, *Honda Research Institute, USA*

Dr Quang Ha, *UTS, Australia*

Associate Professor Kenji Hashimoto, *Meiji University, Japan*

Professor S. Hirose, *Tokyo Institute of Technology, Japan*

Professor Tamas Kalmar-Nagy, *Mitsubishi Electric Research Lab, USA*

Dr M. Kassler, *Michael Kassler & Associates, Pty, NSW, Australia*

Professor Emin Faruk Kececi, *Abdullah Gul University, Turkey*

Associate Professor Hung La, *University of Nevada Reno, USA*

Professor G. Liu, *Ryerson University, Canada*

Professor Daniel Martins, *Federal University of Santa Catarina (UFSC), Brazil*

Professor Todd D. Murphey, *Northwestern University, Evanston, Illinois, USA*

Professor Carl A. Nelson, *University of Nebraska-Lincoln, USA*

Professor Frank Chongwoo Park, *Seoul National University, Seoul 151-742, Korea*

Professor Georg Rauter, *University of Basel, Switzerland*

Professor Lotfi Romdhane, *American University of Sharjah, UAE*

Professor Roberto Sabatini, *RMIT University, Australia*

Professor Andrey V. Savkin, *University of New South Wales, Australia*

Professor B. Siciliano, *University of Naples, Italy*

Professor Nabil Simaan, *Vanderbilt University Nashville, TN, USA*

Professor Tao Sun, *Tianjin University, China*

Professor Daniela Tarnita, *University of Craiova, Romania*

Professor Jeff Trinkle, *Rensselaer Polytechnic Institute, USA*

Professor Qining Wang, *Peking University, China*

Dr Gouwu Wei, *University of Salford, UK*

Professor Mark Yim, *University of Pennsylvania Philadelphia, USA*

Professor Yu Zhou, *SUNY Stony Brook, USA*

Robotica aims to be an outlet for publication of original papers of the highest quality in the field of Robotics and closely related areas. This includes: novel robotic mechanism and actuator design; robot kinematics, dynamics and control; computer vision; sensor fusion; teleoperation and haptic interfaces; robot motion planning; and artificial intelligence. In addition, papers that apply techniques from Robotics to other fields are also welcome. Examples include dynamics and control models applied to biological systems, the description of implementations of robots in factories, service and agricultural settings, and general mechatronic design. Works may be theoretical, computational or experimental, or some combination. Both short papers (rapid communications), and longer archival papers are welcome. Proposals for special issues on topics of current interest are welcome, and can be submitted via email to the editor.

This journal issue has been printed on FSC-certified paper and cover board. FSC is an independent, non-governmental, not-for-profit organization established to promote the responsible management of the world's forests. Please see www.fsc.org for information.

© Cambridge University Press 2021

SUBSCRIPTIONS

Robotica (ISSN 0263-5747) is published as twelve issues per Volume in January, February, March, April, May, June, July, August, September, October, November and December. The electronic-only price for Volume 39, 2021 available to institutional subscribers is £1420 (US \$2507 in USA, Canada and Mexico). EU subscribers (outside the UK) who are not registered for VAT should add VAT at their country's rate. VAT registered subscribers should provide their VAT registration number. Orders, which

must be accompanied by payment, may be sent to a bookseller, subscription agent or direct to the publishers: Cambridge University Press, University Printing House, Shaftesbury Road, Cambridge CB2 8RU, UK. Orders from the USA, Canada and Mexico should be sent to Cambridge University Press, Journals Fulfillment Department, 1 Liberty Plaza, Floor 20, New York, NY 10006, USA. Japanese prices for institutions are available from Kinokuniya Company Ltd, P.O. Box 55, Chitose, Tokyo 156, Japan. Prices include delivery by air.

Periodicals postage paid at New York, NY and additional mailing offices. POSTMASTER: send address changes in USA, Canada and Mexico to *Robotica*, Cambridge University Press, 1 Liberty Plaza, Floor 20, New York, NY 10006, USA.

COPYING

This journal is registered with the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923. Organizations in the USA who are also registered with CCC may therefore copy material (beyond the limits permitted by sections 107 and 108 of US copyright law) subject to payment to CCC of the per-copy fee of \$16.00. This consent does not extend to multiple copying for promotional or commercial purposes. Code 0263-5747/2021/\$16.00.

ISI Tear Sheet Service, 3501 Market Street, Philadelphia, Pennsylvania 19104, USA, is authorised to supply single copies of separate articles for private use only.

Organizations authorized by the Copyright Licensing Agency may also copy material subject to the usual conditions.

For all other use, permission should be sought from Cambridge or the American Branch of Cambridge University Press.

Information on *Robotica* and all other Cambridge journals can be accessed via cambridge.org/core.