Proceedings of ASME 2021 International Mechanical Engineering Congress and Exposition

(IMECE2021)

Volume 7A

November 1-5, 2021 Virtual, Online

Conference Sponsor
American Society of
Mechanical Engineers

Two Park Avenue * New York, N.Y. 10016

© 2021, The American Society of Mechanical Engineers, 2 Park Avenue, New York, NY 10016, USA (www.asme.org)

All rights reserved. Printed in the United States of America. Except as permitted under the United States Copyright Act of 1976, no part of this publication may be reproduced or distributed in any form or by any means, or stored in a database or retrieval system, without the prior written permission of the publisher.

INFORMATION CONTAINED IN THIS WORK HAS BEEN OBTAINED BY THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS FROM SOURCES BELIEVED TO BE RELIABLE. HOWEVER, NEITHER ASME NOR ITS AUTHORS OR EDITORS GUARANTEE THE ACCURACY OR COMPLETENESS OF ANY INFORMATION PUBLISHED IN THIS WORK. NEITHER ASME NOR ITS AUTHORS AND EDITORS SHALL BE RESPONSIBLE FOR ANY ERRORS, OMISSIONS, OR DAMAGES ARISING OUT OF THE USE OF THIS INFORMATION. THE WORK IS PUBLISHED WITH THE UNDERSTANDING THAT ASME AND ITS AUTHORS AND EDITORS ARE SUPPLYING INFORMATION BUT ARE NOT ATTEMPTING TO RENDER ENGINEERING OR OTHER PROFESSIONAL SERVICES. IF SUCH ENGINEERING OR PROFESSIONAL SERVICES ARE REQUIRED, THE ASSISTANCE OF AN APPROPRIATE PROFESSIONAL SHOULD BE SOUGHT.

ASME shall not be responsible for statements or opinions advanced in papers or . . . printed in its publications (B7.1.3). Statement from the Bylaws.

For authorization to photocopy material for internal or personal use under those circumstances not falling within the fair use provisions of the Copyright Act, contact the Copyright Clearance Center (CCC), 222 Rosewood Drive, Danvers, MA 01923, tel: 978-750-8400, www.copyright.com.

Requests for special permission or bulk reproduction should be addressed to the ASME Publishing Department, or submitted online at: https://www.asme.org/publications-submissions/journals/information-for-authors/journalguidelines/rights-and-permissions

ISBN: 978-0-7918-8561-1

CONTENTS

Proceedings of ASME 2021 International Mechanical Engineering Congress and Exposition Volume 7A

Dynamics, Vibration, and Control
Congress-Wide Symposium on NDE and SHM: Dynamics, Vibration, and Control for Structural Health Monitoring Applications
IMECE2021-69529
IMECE2021-70345
IMECE2021-70726
IMECE2021-70986
Junzhen Wang, Yanfeng Shen, Xuezhi Peng, Zhengyang Han, and Shaopeng Jiang IMECE2021-72024
Control Theory and Applications
IMECE2021-67484
IMECE2021-70264
IMECE2021-70904
IMECE2021-71502
IMECE2021-71715
IMECE2021-73687 Deep Neural Network Real-Time Control of a Motorized Functional Electrical Stimulation Cycle With an Uncertain Time-Varying Electromechanical Delay Hannah M. Sweatland, Brendon C. Allen, Max L. Greene, and Warren E. Dixon

Design and Control of Robots, Mechanisms, and Structures
IMECE2021-67358
IMECE2021-68336
IMECE2021-69383
IMECE2021-69421
IMECE2021-69563
IMECE2021-69715
IMECE2021-69732
IMECE2021-69733
IMECE2021-69880
IMECE2021-70046
IMECE2021-70047
IMECE2021-70139
IMECE2021-70151
IMECE2021-70510
IMECE2021-71712

IMECE2021-73288
IMECE2021-73811
Dynamics and Control in Micro/Nano Engineering
IMECE2021-73535
Dynamics and Control of Soft Structures
IMECE2021-70300
Fluid-Structure Interaction
IMECE2021-66692
IMECE2021-67776
IMECE2021-69327
IMECE2021-69467
IMECE2021-70268
Karazis, and Marco Amabili
IMECE2021-70713
IMECE2021-72944
General
IMECE2021-66287

IMECE2021-69100	9
IMECE2021-69246	D
IMECE2021-69721	1
IMECE2021-69778	2
IMECE2021-70169	3
IMECE2021-70914	4
IMECE2021-71854	5
IMECE2021-71876	6
IMECE2021-72981	7
IMECE2021-73717	8
Machine Learning and Artificial Intelligence in Dynamics and Vibrations	
IMECE2021-69392	9
IMECE2021-69994	D
IMECE2021-70016	1
IMECE2021-73311	2