

# **2021 International Symposium on Micro-NanoMechatronics and Human Science (MHS 2021)**

**Nagoya, Japan  
5-8 December 2021**



**IEEE Catalog Number: CFP21768-POD  
ISBN: 978-1-6654-0774-8**

**Copyright © 2021 by the Institute of Electrical and Electronics Engineers, Inc.  
All Rights Reserved**

*Copyright and Reprint Permissions:* Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

***\*\*\* This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP21768-POD
ISBN (Print-On-Demand):	978-1-6654-0774-8
ISBN (Online):	978-1-6654-0773-1
ISSN:	2474-3763

**Additional Copies of This Publication Are Available From:**

Curran Associates, Inc  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: (845) 758-0400  
Fax: (845) 758-2633  
E-mail: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

CURRAN ASSOCIATES INC.  
**proceedings**  
.com

# TABLE OF CONTENTS

Simulations of Actomyosin-Based Molecular Shuttles Controlled by External Force.....	1
<i>Samuel Macharia Kang'iri, Andrew Salem, Dan V. Nicolau, Takahiro Nitta</i>	
A Study of Human State Pattern Acquisition Method for Partner Robots .....	6
<i>Nao Yamada, Yani Mohamad, Naoyuki Kubota</i>	
Dynamic Characteristics of a Dielectric Elastomer Actuator Fabricated Using a Stretchable CNT Powder Electrode .....	11
<i>Ardi Wiranata, Abdulsalam Mohammed Abdullah Haidar, Taichi Murakami, Ayato Minaminosono, Zebing Mao, Shingo Maeda</i>	
The Regret Motivated Reinforcement Learning.....	17
<i>Yihao Wu, Jun Izawa</i>	
Object Recognition Using the Deformation Dynamics of Polyurethane Foam.....	21
<i>Yasumichi Wakao, Ryo Sakurai, Hajime Kitano</i>	
Bidirectional Tether Less Soft Actuator with Expeditious Position Control Mechanism .....	27
<i>Jayant Unde, Jacinto Colan, Yasuhisa Hasegawa</i>	
Design of a Compliant 7-DoF Power Soft Robot Driven by Hydraulic Artificial Muscles .....	33
<i>Yunhao Feng, Tohru Ide, Hiroyuki Nabaie, Gen Endo, Ryo Sakurai, Shingo Ohno, Koichi Suzumori</i>	
Physics-Informed Reservoir Computing with Autonomously Switching Readouts: A Case Study in Pneumatic Artificial Muscles .....	37
<i>Wentao Sun, Nozomi Akashi, Yasuo Kuniyoshi, Kohei Nakajima</i>	
Identification of Dynamic Hand Gestures with Force Myography.....	43
<i>Eric Fujiwara, Matheus K. Gomes, Yu Tzu Wu, Carlos K. Suzuki</i>	
Parametric Design Optimization of a Universal Supernumerary Robotic Limb .....	48
<i>Jun Huo, Bo Yang, Hongge Ru, Jian Huang</i>	
Ground Reaction Force Evaluation During a Baseball Practice Swing Movement.....	54
<i>Masahiro Isogai, Hoshi Kashiwazaki, Kouta Takahashi, Kazuto Miyawaki</i>	

## Author Index