

Scopus

## Document details

[< Back to results](#) | 1 of 1
[Export](#)
[Download](#)
[Print](#)
[E-mail](#)
[Save to PDF](#)
[Add to List](#)
[More... >](#)
[Full Text](#)
[View at Publisher](#)

IECBES 2014, Conference Proceedings - 2014 IEEE Conference on Biomedical Engineering and Sciences: "Miri, Where Engineering in Medicine and Biology and Humanity Meet"  
 23 February 2015, Article number 7047573, Pages 596-601  
 3rd IEEE Conference on Biomedical Engineering and Sciences, IECBES 2014; Kuala Lumpur; Malaysia; 8 December 2014 through 10 December 2014; Category numberCFP1426K-ART; Code 111205

## Adaptive hybrid impedance control for a 3DOF upper limb rehabilitation robot using hybrid automata (Conference Paper)

 Sado, F.<sup>a</sup> [✉](#), Sidek, S.N.<sup>b</sup> [✉](#), Yusof, H.M.<sup>b</sup> [✉](#)

<sup>a</sup>Department of Mechatronics Engineering, Faculty of Engineering, International Islamic University Malaysia, Gombak Selangor, Malaysia

<sup>b</sup>Mechatronics Engineering Department, International Islamic University Malaysia, Gombak, Selangor, Malaysia

### Abstract

[View references \(14\)](#)

There is a growing need for effective and adaptive robot-assisted rehabilitation platforms for post-stroke patients which can facilitate considerably their sensorimotor control performance, and also ensure safety for the patients. © 2014 IEEE.

### Indexed keywords

Engineering controlled terms: Biomedical engineering Robots

Hybrid automatons

Hybrid impedance control

Post stroke patients

Robot-assisted rehabilitation

Sensorimotor control

Upper-limb rehabilitation

Engineering main heading: Patient rehabilitation

**ISBN:** 978-147994084-4

**Source Type:** Conference Proceeding

**Original language:** English

**DOI:** 10.1109/IECBES.2014.7047573

**Document Type:** Conference Paper

**Sponsors:** Silterra, University of Malaya

**Publisher:** Institute of Electrical and Electronics Engineers Inc.

 Metrics [View all metrics >](#)

1 Citation in Scopus

1.24 Field-Weighted Citation Impact



PlumX Metrics

Usage, Captures, Mentions, Social Media and Citations beyond Scopus.

Cited by 1 document

Development and control of a 3DOF upper-limb robotic device for patients with paretic limb impairment

Fatai, S. , Sidek, S.N. , Hazlina, Y.M.  
*(2015) ARPJ Journal of Engineering and Applied Sciences*

[View details of this citation](#)

Inform me when this document is cited in Scopus:

[Set citation alert >](#)
[Set citation feed >](#)

Related documents

Find more related documents in Scopus based on:

[Authors >](#) [Keywords >](#)

References (14)

[View in search results format >](#)
 All

[Export](#)
[Print](#)
[E-mail](#)
[Save to PDF](#)
[Create bibliography](#)

- 
- 1 Cumming, T., Brodtmann, A.  
**Dementia and stroke: The present and future epidemic**  
  
(2010) *International Journal of Stroke*, 5 (6), pp. 453-454. Cited 19 times.  
doi: 10.1111/j.1747-4949.2010.00527.x  
  
[View at Publisher](#)
- 
- 2 Persky, R.W., Turtzo, L.C., McCullough, L.D.  
**Stroke in women: Disparities and outcomes**  
  
(2010) *Current Cardiology Reports*, 12 (1), pp. 6-13. Cited 46 times.  
doi: 10.1007/s11886-009-0080-2  
  
[View at Publisher](#)
- 
- 3 Maciejasz, P., Eschweiler, J., Gerlach-Hahn, K., Jansen-Troy, A., Leonhardt, S.  
**A survey on robotic devices for upper limb rehabilitation**  
  
(2014) *Journal of NeuroEngineering and Rehabilitation*, 11 (1), art. no. 3. Cited 112 times.  
doi: 10.1186/1743-0003-11-3  
  
[View at Publisher](#)
- 
- 4 Marchal-Crespo, L., Reinkensmeyer, D.J.  
**Review of control strategies for robotic movement training after neurologic injury**  
  
(2009) *Journal of NeuroEngineering and Rehabilitation*, 6 (1), art. no. 20. Cited 414 times.  
doi: 10.1186/1743-0003-6-20  
  
[View at Publisher](#)
- 
- 5 Ju, M.-S., Lin, C.-C.K., Lin, D.-H., Hwang, I.-S., Chen, S.-M.  
**A rehabilitation robot with force-position hybrid fuzzy controller: Hybrid fuzzy control of rehabilitation robot**  
  
(2005) *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, 13 (3), pp. 349-358. Cited 114 times.  
doi: 10.1109/TNSRE.2005.847354  
  
[View at Publisher](#)
- 
- 6 Ott, C., Mukherjee, R., Nakamura, Y.  
**Unified impedance and admittance control**  
  
(2010) *Proceedings - IEEE International Conference on Robotics and Automation*, art. no. 5509861, pp. 554-561. Cited 42 times.  
ISBN: 978-142445038-1  
doi: 10.1109/ROBOT.2010.5509861  
  
[View at Publisher](#)
- 
- 7 Hogan, N.  
**Impedance control: An approach to manipulation: Part II-implementation**  
  
(1985) *Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME*, 107 (1), pp. 8-16. Cited 233 times.  
doi: 10.1115/1.3140713  
  
[View at Publisher](#)
-

- 
- 8 Xu, G., Song, A., Li, H.  
Adaptive impedance control for upper-limb rehabilitation robot using evolutionary dynamic recurrent fuzzy neural network  
(2011) *Journal of Intelligent and Robotic Systems: Theory and Applications*, 62 (3-4), pp. 501-525. Cited 27 times.  
doi: 10.1007/s10846-010-9462-3  
[View at Publisher](#)
- 
- 9 Almeida, F., Lopes, A., Abreu, P.  
Force-impedance control: A new control strategy of robotic manipulators  
(1999) *Recent Advances in Mechatronics*, pp. 126-137. Cited 20 times.
- 
- 10 Anderson, R.J., Spong, M.W.  
Hybrid Impedance Control of Robotic Manipulators  
(1988) *IEEE Journal on Robotics and Automation*, 4 (5), pp. 549-556. Cited 154 times.  
doi: 10.1109/56.20440  
[View at Publisher](#)
- 
- 11 Wang, J., Li, Y.  
Traching control of a redundant manipulator with the assistance of tactile sensing  
(2011) *Intelligent Automation and Soft Computing*, 17 (7), pp. 833-845. Cited 10 times.  
doi: 10.1080/10798587.2011.10643192  
[View at Publisher](#)
- 
- 12 Spong, M.W., Hutchinson, S., Vidyasagar, M.  
(2006) *Robot Modeling and Control*. Cited 1462 times.  
John Wiley & Sons New York
- 
- 13 Lewis, F.L., Abdallah, C.T., Dawson, D.M.  
(1993) *Control of Robot Manipulators*, 236. Cited 870 times.  
Macmillan New York
- 
- 14 Bohannon, R.W., Smith, M.B.  
Interrater reliability of a modified Ashworth scale of muscle spasticity  
(1987) *Physical Therapy*, 67 (2), pp. 206-207. Cited 2721 times.  
[View at Publisher](#)
- 

© Copyright 2015 Elsevier B.V., All rights reserved.

[< Back to results](#) | 1 of 1

[^ Top of page](#)

#### About Scopus

[What is Scopus](#)  
[Content coverage](#)  
[Scopus blog](#)

#### Language

[日本語に切り替える](#)  
[切换到简体中文](#)  
[切换到繁體中文](#)

#### Customer Service

[Help](#)  
[Contact us](#)

**ELSEVIER**

[Terms and conditions](#) [Privacy policy](#)

Copyright © 2017 Elsevier B.V. All rights reserved. Scopus® is a registered trademark of Elsevier B.V.

Cookies are set by this site. To decline them or learn more, visit our [Cookies page](#).

 RELX Gr