

Quick Search [View search history](#) | 1 of 1
[Download PDF](#)
[Export](#)
[Print](#)
[E-mail](#)
[Create bibliography](#)
[Add to My List](#)
[Add to 2collab](#)

19th International Workshop on Robotics in Alpe-Adria-Danube Region, RAAD 2010 - Proceedings
 2010, Article number 5524584, Pages 211-217

ISBN: 978-142446886-7

DOI: 10.1109/RAAD.2010.5524584

Document Type: Conference Paper

Source Type: Conference Proceeding

Sponsors: IEEE Joint Chapter of R and A and IES, IEEE SMC Chapter, IEEE Robotics and Automation Society, Hungarian Academy of Engineering, IFToMM

[View references \(19\)](#)

19th International Workshop on Robotics in Alpe-Adria-Danube Region, RAAD 2010; Balatonfured; 26 June 2010 through 27 June 2010; Category number CFP1075J-ART; Code 81516

[View at publisher](#) |

Hybrid system for event-based planning and control of robot operation

Jezernik, K. Hace, A.

University of Maribor, Faculty of Electrical Engineering and Computer Science, Maribor, Slovenia

Abstract

The hybrid systems contain two distinct types of components, subsystem with continuous dynamics and subsystem with discrete dynamics that interact with each other. Such hybrid systems arise in varied contexts in manufacturing, communication networks, auto-pilot design, and traffic control and in robotics and mechatronics, among others. Hybrid systems have a central role in embedded control systems that interact with the physical world. They also arise from the hierarchical organization of complex systems and from the interaction of discrete planning algorithms and continuous control algorithms in autonomous, intelligent systems. The experimental results demonstrate the efficiency of the hybrid approach for the bilateral control of a 1-DOF master-slave teleoperation. © 2010 IEEE.

Language of original document

English

References (19) [View in table layout](#)

[Export](#)
[Print](#)
[E-mail](#)
[Create bibliography](#)
 Select: Page

- 1 Cassandras, C.G., Lafortune, S.
(2008) *Introduction to Discrete Event Systems*. Cited 18 times.
2nd ed. Springer
- 2 Ramadge, P.J., Wonham, W.M.
SUPERVISORY CONTROL OF A CLASS OF DISCRETE EVENT PROCESSES.
(1987) *SIAM Journal on Control and Optimization*, 25 (1), pp. 206-230. Cited 874 times.
[View at publisher](#)
- 3 Jensen, R.M.
DES controller synthesis and fault tolerant control. A Survey of recent advances
(2003) *IT University Technical Reports Series*. Cited 10 times.
Copenhagen
[View on Web](#)
- 4 Bryan, E.G.
Control logic requirements for complex manufacturing systems
(2000) *NSF Workshop on Logic Control for Manufacturing Systems*
- 5 Iordache, M.V., Antsaklis, P.J.

Cited by since 1996

This article has been cited 0 times in Scopus.

Inform me when this document is cited in Scopus:

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

Find related documents

In Scopus based on

[References](#)[Authors](#)

Supervision based on place invariants: A survey

ISIS Technical Report ISIS-2004-3003



- 6
-
- Tam, T.J., Bejczy, A.K., Guo, C., Xi, N.

Intelligent planning and control for telerobotic operations(1995) *Proc. 21st International Conference on IEEE IECon*, 1, pp. XXXIV-XXXV.

- 7
-
- Wainer, G.A.

(2009) *Discrete-Event Modeling and Simulation: A Practitioner's Approach*. Cited 7 times.

CRC Press, Taylor and Francis Group, Boca Raton



- 8
-
- Ramadge, Peter J.G., Wonham, W.Murray

Control of discrete event systems(1989) *Proceedings of the IEEE*, 77 (1), pp. 81-98. Cited 727 times.

doi: 10.1109/5.21072

[View at publisher](#)

- 9
-
- Branicky, M.S., Borkar, V.S., Mitter, S.K.

A unified framework for hybrid control: Model and optimal control theory(1998) *IEEE Transactions on Automatic Control*, 43 (1), pp. 31-45. Cited 437 times.[View at publisher](#)

- 10
-
- Polič, A., Jezernik, K.

Closed-loop matrix based model of discrete event systems for machine logic control design(2005) *IEEE Transactions on Industrial Informatics*, 1 (1), pp. 39-46. Cited 23 times.

doi: 10.1109/TII.2005.844424

[View at publisher](#)

- 11
-
- Polič, A.

(2005) *Matrix Based Approach to Control of Discrete Event Systems: A Recursive Description of Logically Controlled Systems*. Cited 5 times.

PhD Thesis, University of Maribor, Maribor, Slovenia



- 12
-
- Jezernik, K., Rodič, M.

High precision motion control of servo drives(2009) *IEEE Transactions on Industrial Electronics*, 56 (10), pp. 3810-3816. Cited 2 times.

doi: 10.1109/TIE.2009.2020709

[View at publisher](#)

- 13
-
- Natori, K., Tsuji, T., Ohnishi, K., Hase, A., Jezernik, K.

Time-delay compensation by communication disturbance observer for bilateral teleoperation under time-varying delay(2010) *IEEE Transactions on Industrial Electronics*, 57 (3), art. no. 5196767, pp. 1050-1062.

doi: 10.1109/TIE.2009.2028337

[View at publisher](#)

- 14
-
- Tan, J., Xi, N., Wang, Y.

Integrated task planning and control for mobile manipulators(2003) *International Journal of Robotics Research*, 22 (5), pp. 337-354. Cited 39 times.[View at publisher](#)

- 15
-
- Li, X.-M., Yang, C.-J., Chen, Y., Hu, X.-D.

Hybrid event based control architecture for tele-robotic systems controlled through Internet(2004) *Journal of Zhejiang University: Science*, 5 (3), pp. 296-302. Cited 9 times.

doi: 10.1631/jzus.2004.0296

[View at publisher](#)

- 16
-
- Eirea, S.M., Koo, G.

Hybrid modeling and control of power electronics(2003) *Proc. 6th Int. Workshop on Hybrid Systems: Computation and Control*, 2993, pp. 450-465. Cited 3 times.

Lecture notes in computer science, Springer



- 17
-
- Polič, A., Jezernik, K.

Event-driven current control structure for a three phase inverter(2007) *Int. Rev. Electrical Eng. (Testo Stamp.)*, 2 (1), pp. 28-35. Cited 5 times.

Jan.-Feb.



18  Sabanovic, A., Jezernik, K., Sabanovic, N.


Sliding modes applications in power electronics and electrical drives

(2002) *Lecture Notes in Control and Information Sciences*, pp. 223-251. Cited 10 times.

1st ed., Y.U. Xinghuo, X.U. Jian-Xin, (Ed.). Berlin: Springer

[View at publisher](#)




19  Park, E., Tilbury, D.M., Khargonekar, P.P.

A formal implementation of logic controllers for machining systems using petri nets and sequential function chart

Proc. of the 1998 Japan-USA Symposium on Flexible Automation, 1998.

Otsu, Japan



 Jezernik, K.; University of Maribor, Faculty of Electrical Engineering and Computer Science, Maribor, Slovenia; email:karel.jezernik@uni-mb.si

© Copyright 2010 Elsevier B.V., All rights reserved.

19th International Workshop on Robotics in Alpe-Adria-Danube Region, RAAD 2010 - Proceedings

2010, Article number 5524584, Pages 211-217

[View search history](#) | 1 of 1

[Top of page](#)

[Search](#) [Sources](#) [Analytics](#) [My alerts](#) [My list](#) [My settings](#)

[Help](#)

About Scopus

[What is Scopus](#)

[Content coverage](#)

[What do users think](#)

[Latest](#)

[Tutorials](#)

Contact and Support

[Contact and support](#)

[Live Chat](#)

About Elsevier

[About Elsevier](#)

[About SciVerse](#)

[About SciVal](#)

[Terms and Conditions](#)

[Privacy Policy](#)



Copyright © 2010 Elsevier B.V. All rights reserved. SciVerse® is a registered trademark of Elsevier Properties S.A., used under license. Scopus® is a registered trademark of Elsevier B.V.