Resume

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Education:

1995	Ph. D. degree in Mechanical Engineering, Xidian University, *Xi'an,* China
1992	Master degree in Mechanical Engineering, Xidian University, Xi'an, China
1989	B. S. degree in Mechanical Engineering, Xidian University, Xi'an, China

Research interests:

Discrete event systems; Petri nets; Intelligent manufacturing and automation; Intelligent Traffic, Game Theory; Data and model mining; Granular computing

Experience:

July 2013 – Present	Professor, Institute of Systems Engineering, Macau University of Science and Technology, Macau
Sep. 2002 – June 2013	Professor, Xidian University, China
July. 1997 – Aug. 2002	Associate Professor, Xidian University, China
Sep. 1992 – June 1997	Assist Professor, Xidian University, China

Affiliations:

[1] Fellow of IEEE (2016)

Honors and Awards:

[1] The 2018 Science and Technology Award of Macau-The Third Prize of Natural Science Award;

[2] The 2016 Science and Technology Award of Macau-The Third Prize of Technological Invention Award;

[3] Highly cited researchers in Thomson Reuters' Highly Cited Researchers 2013-2018;

Professional activities and services:

[1] Steering committee member of WoDES

[2] General chair, 2016 Workshop on DES

[3] General co-chair, 2008 IEEE Int. Conf. Automation Science and Engineering (CASE)

Project (as PI):

[1] "Optimal and Dynamic Control of Discrete Event Systems Modeled with Petri Nets," the Science and Technology Development Fund, Aug. 2017 – Aug. 2020.

[2] "Opacity verification and enforcement in the framework of partially observed Petri nets,'' the Science and Technology Development Fund of Macau, Jun. 2019–Jun.2022.

[3] "State space characterization of resource allocation systems: An algebraic approach," the Science and Technology Development Fund of Macau, May. 2018–May. 2021.

[4] "Asymptotically stable supervisor synthesis and optimization of discrete event systems modeled with Petri nets," the Science and Technology Development Fund of Macau, Apr. 2014–Apr. 2017.

[5] "On mining and construction of Petri net models for discrete event systems by external observations," the Science and Technology Development Fund of Macau, Jun. 2016–Jun. 2019.

Publications:

Monographs:

[1] Yufeng Chen and **Zhiwu Li**, *Optimal Supervisory Control of Automated Manufacturing Systems*, New York: CRC Press, Taylor & Francis Group, 2013.

[2] **Zhiwu Li** and Mengchu Zhou, *Deadlock Resolution in Automated Manufacturing Systems: A Novel Petri Net Approach*, London: Springer-Verlag, Feb. 2009.

Selected journal articles:

[1] Zhu, Guanghui; Feng, Lei; Wu, Naiqi; **Li, Zhiwu**, An efficient fault diagnosis approach based on integer linear programming for labeled Petri nets, *IEEE Transactions on Automatic Control*, accepted, June 30, 2020.

[2] Ma, Ziyue; Yin, Xiang; **Li, Zhiwu**, Marking predictability and prediction in labeled Petri nets, *IEEE Trans. Automatic Control*, accepted, Feb 8, 2020.

[3] Wang, Xi; **Li, Zhiwu**; Wonham, M, Real-time scheduling based on nonblocking supervisory control of state-tree structures, *IEEE Trans. Automatic Control*, accepted, Feb 17, 2020.

[4] Ma Ziyue; Zhu, Guanghui; **Li, Zhiwu**; Giua, A, Marking estimation in Petri nets using hierarchical basis reachability graphs, *IEEE Trans. Automatic Control*, accepted, Jan 24, 2020.

[5] Hu Yihui; Ma, Ziyue; **Li, Zhiwu**, Design of supervisors for active diagnosis in discrete event systems, *IEEE Trans. Automatic Control*, accepted, DOI: 10.1109/TAC.2020.2970011, 2019.

[6] Ma, Ziyue; Zhu, Guanghui; **Li, Zhiwu**; Giua, Alessandro, Computation of admissible marking sets in weighted synchronization-free Petri nets by dynamic programming, *IEEE Transactions on Automatic Control*, vol. 65, no. 6, pp. 2662-2669, 2020.

[7] Saadaoui, Ikram; **Li, Zhiwu**; Wu, Naiqi, Current-state opacity modelling and verification in partially observed Petri nets, *Automatica*, vol. 116, pp. 1-10, 2020.

[8] Ma, Ziyue; **Li, Zhiwu**; Giua, Alessandro, Marking estimation in a class of time labeled Petri nets, *IEEE Transactions on Automatic Control*, vol. 65, no. 2, pp. 493-506, 2020.

[9] Li, Liang; Basile, Francesco; **Li, Zhiwu**, An approach to improve permissiveness of supervisors for GMECs in time Petri net systems, *IEEE Transactions on Automatic Control*, vol. 65, no. 1, pp. 237-251, 2020.

[10] He, Zhou; **Li, Zhiwu**; Giua, Alessandro; Basile, Francesco; Seatzu, Carla, Some remarks on state estimation and fault diagnosis of labeled time Petri net systems with unobservable transitions, *IEEE Transactions on Automatic Control*, vol. 64, no. 12, pp. 5253-5259, 2019.

[11] Liu, Yingying; Cai, Kai; **Li, Zhiwu**, On scalable supervisory control of multi-agent discrete-event systems, *Automatica*, vol. 108, pp. 0-0, 2019.

[12] Yang, Lan; **Li, Zhiwu**; Giua, Alessandro, Influence minimization in linear threshold networks, *Automatica*, vol. 100, pp. 10-16, 2019.

[13] Zhu, Guanghui; **Li, Zhiwu**; Wu, Naiqi, Model-based fault identification of discrete event systems using partially observed Petri nets, *Automatica*, vol. 96, pp. 201-212, 2018.

[14] Zhang, Huimin; Feng, Lei; **Li, Zhiwu**, A learning-based synthesis approach to the supremal nonblocking supervisor of discrete-event systems, *IEEE Transactions on Automatic Control,* vol. 63, no. 10, pp. 3345-3360, 2018.

[15] Cong, Xuya; Fanti, Maria Pia; Mangini, Agostino Marcello; **Li, Zhiwu**, On-line verification of current-state opacity by Petri nets and integer linear programming, *Automatica*, vol. 94, pp. 205-213, 2018.

[16] He, Zhou; **Li, Zhiwu**; Giua, Alessandro, Performance optimization for timed weighted marked graphs under infinite server semantics, *IEEE Transactions on Automatic Control*, vol. 63, no. 8, pp. 2573-2580, 2018.

[17] Wang, Xi; **Li, Zhiwu**; Wonham, W. M., Priority-free conditionally-preemptive scheduling of modular sporadic real-time systems, *Automatica*, vol. 89, pp. 392-397, 2018.

[18] Tong, Yin; **Li, Zhiwu**; Seatzu, Carla; Giua, Alessandro, Decidability of opacity verification problems in labeled Petri net systems, *Automatica*, vol. 80, pp. 48-53, 2017.

[19] Tong, Yin; **Li, Zhiwu**; Seatzu, Carla; Giua, Alessandro, Verification of state-based opacity using Petri nets, *IEEE Transactions on Automatic Control*, vol. 62, no. 6, pp. 2823-2837, 2017.

[20] Ma, Ziyue; Tong, Yin; **Li, Zhiwu**; Giua, Alessandro, Basis marking representation of Petri net reachability spaces and its application to the reachability problem, *IEEE Transactions on Automatic Control*, vol. 62, no. 3, pp. 1078-1093, 2017.

[21] Ma, Ziyue; **Li, Zhiwu**; Giua, Alessandro, Characterization of admissible marking sets in Petri nets with conflicts and synchronizations, *IEEE Transactions on Automatic Control*, vol. 62, no. 3, pp. 1329-1341, 2017.

[22] Ma, Ziyue; **Li, Zhiwu**; Giua, Alessandro, Petri net controllers for generalized mutual exclusion constraints with floor operators, *Automatica*, vol. 74, pp. 238-246, 2016.

[23] Tong, Yin; Li, Zhiwu; Giua, Alessandro, On the equivalence of observation structures for Petri net generators, *IEEE Transactions on Automatic Control*, vol. 61, no. 9, pp. 2448-2462, 2016.

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