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周永华

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个人简介

基本情况

姓　名：	周永华
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职　称：	教授
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通信地址：	北京交通大学电子与信息工程学院
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教育背景

2003年7月：毕业于清华大学自动化系，获工学博士学位

2006年2月：清华大学交通研究所博士后出站

工作经历

2006年2月至今：在北京交通大学电子信息工程学院自动控制工程系工作

2011年3月-2012年3月：美国耶鲁大学系统科学中心访问学者

研究方向

智能交通系统的信息与控制技术

控制工程(专业学位)

控制理论与控制工程

轨道交通自动化与控制

招生专业

交通信息工程及控制硕士

控制工程硕士

控制科学与工程硕士

交通信息工程及控制博士

科研项目

1. 国家自然科学基金"面上"：高速铁路网络列车运行基于模型预测和证据推理的安全预测与冲突防范, 2017-01-01-2020-12-31，主持

2. 基本科研业务费：高速列车运行基于云计算的大数据处理及应用，2017-01-01-2019-12-31，参加

3. 科技部"科技支撑"：高速磁浮半实物仿真多分区运行控制系统设备研制-满足5分区半实物仿真系统的分区控制系统软件研究, 2013-2016，参加

4. 北京交大创新科技中心：基于ARM的铁路运输演练控制系统，2013-08-28--2014-03-28，参加

5. 基本科研业务费：基于动态FNN模型的轨道电路PHM关键技术研究，2014-01-01--2015-12-31，参加

6. 国家自然科学基金"面上"：数据驱动的交通诱导实时鲁棒预测控制研究，2011-01-01--2013-12-31，主持

7. 基本科研业务费：基于预测控制机理的列车运行实时调度研究，2009-12-01--2012-12-01，主持

8. 校科技基金：基于预测控制和网格计算的实时交通诱导与控制，2006-12-01--2008-09-01，主持

教学工作

主讲微机原理与接口技术、单片机原理与应用、微控制器结构与应用等课程。

论文/期刊

代表作：

1. Lu Zhao, Yonghua Zhou, Huapu Lu, Hamido Fujita. Parallel computing method of deep belief networks and its application to traffic flow prediction. Knowledge-Based Systems, 2019, vol. 163, pp. 972-987. (SCI)

2. Yonghua Zhou, Xin Tao. Robust safety monitoring and synergistic operation planning between time- and energy-efficient movements of high speed trains based on MPC. IEEE Access, 2018, vol. 6, pp. 17377-17390. (SCI)

3. Jingjie Ning, Yonghua Zhou, Fengchu Long. A synergistic energy-efficient planning approach for urban rail transit operations. Energy, 2018, vol. 151, pp. 854-863. (SCI)

4. Yongnan Zhang, Yonghua Zhou. Distributed coordination control of traffic network flow using adaptive genetic algorithm based on cloud computing. Journal of Network and Computer Applications, 2018, 119, pp. 110-120. (SCI)

5. Zhihui Wang, Yonghua Zhou, Deng Liu. Models and algorithms of conflict detection and scheduling optimization for high-speed train operations based on MPC. Journal of Control Science and Engineering, 2018, Article number: 3473175. (EI)

6. Yonghua Zhou, Xin Tao, Lei Luan, Jingjie Ning. Revisiting the 7/23 train accident using computer reconstruction simulation for causation and prevention analysis. Mathematics and Computers in Simulation, 2018, vol. 148, pp. 1-15. (SCI)

7. Yonghua Zhou, Xin Tao, Lei Luan, Zhihui Wang. Safety justification of train movement dynamic processes using evidence theory and reference models. Knowledge-Based Systems, 2018, vol. 139, 78-88. (SCI)

8. Yonghua Zhou and Zhenlin Zhang. High-speed train control based on multiple-model adaptive control with second-level adaptation. Vehicle System Dynamics, vol. 52, no. 5, pp. 637-652, May 2014. (SCI)

9. Yonghua Zhou, Zhenlin Zhang and Deng Liu. Analysis of train movement dynamics under various temporal–spatial constraints in fixed-block railway network using extended cellular automaton model. Modern Physics Letters B, vol. 28, no. 8, pp. 1450060-1~1450060-11, March 2014. (SCI)

10. Yonghua Zhou and Chao Mi. Modeling and simulation of train movements under scheduling and control for a fixed-block railway network using cellular automata. Simulation - Transactions of the Society for Modeling and Simulation International, vol. 89, no. 6, pp. 771-783, June 2013. (SCI)

11. Yonghua Zhou, Xun Yang and Chao Mi. Dynamic route guidance based on model predictive control. CMES - Computer Modeling in Engineering & Sciences, vol. 92, no. 5, pp. 477-491, June 2013. (SCI)

12. Yonghua Zhou. Fuzzy indirect adaptive control using SVM-based multiple models for a class of nonlinear systems. Neural Computing & Applications, vol. 22, no. 3-4, pp. 825-833, March 2013. (SCI)

13. Yonghua Zhou, Xun Yang and Chao Mi. Model Predictive Control for High-speed Train with Automatic Trajectory Configuration and Tractive Force Optimization. CMES - Computer Modeling in Engineering & Sciences, vol. 90, no. 6, pp. 415-437, February 2013. (SCI)

14. Yonghua Zhou, Xun Yang and Chao Mi. State Estimation of Unequipped Vehicles Utilizing Microscopic Traffic Model and Principle of Particle Filter. CMES - Computer Modeling in Engineering & Sciences, vol. 89, no. 6, pp. 497-512, December 2012. (SCI)

15. Yonghua Zhou, Chao Mi and Xun Yang. The Cellular Automaton Model of Microscopic Traffic Simulation Incorporating Feedback Control of Various Kinds of Drivers. CMES - Computer Modeling in Engineering & Sciences, vol. 86, no. 6, pp. 533-549, August 2012. (SCI)

16. Yonghua Zhou and Chao Mi. Modeling train movement for moving-block railway network using cellular automata. CMES - Computer Modeling in Engineering & Sciences, vol. 83, no. 1, pp. 1-21, January 2012. (SCI)

17. Yonghua Zhou and Yuliu Chen. The Analytic Supporting Tools for Business Reengineering With System Integration Design. IEEE Transactions on Systems, Man, and Cybernetics, Part A: Systems and Humans, vol. 40, no. 2, pp. 285-300, March 2010. (SCI)

18. Yonghua Zhou. Study on the simulation of traffic navigation predictive control. Control and Decision, vol. 24, no. 12, pp. 1869-1872, December 2009. (EI)

19. Yonghua Zhou and Yuliu Chen. Project-oriented resource assignment: from business process modelling to business process instantiation with operational performance consideration. International Journal of Computer Integrated Manufacturing, vol. 21, no. 1, pp. 97-110, January 2008. (SCI)

20. Yonghua Zhou. Mechanism and approach of traffic flow predictive control. China Journal of Highway and Transport, vol. 20, no. 1, pp. 107-111, January 2007. (EI)

21. Yonghua Zhou, Xun Yang, Qiancan Liu and Zhenlin Zhang. Train Movement High-level Model for Real-time Safety Justification and Train Scheduling Based on Model Predictive Control. 2013 IEEE International Conference on Intelligent Rail Transportation (ICIRT), pp. 48-53, August 2013.

22. Yonghua Zhou. Web Services-based Grid Computing for Traffic Flow Predictive Control. 1st WRI Global Congress on Intelligent Systems (GCIS 2009), pp. 455-459, May 2009.

23. Yonghua Zhou, Yangpeng Wang, Pin Wu and Peng Wang. Real-time Optimal Speed Coordination and Scheduling for High-speed Trains Based on Model Predictive Control. Advanced Materials Research, vol. 433-440, pp. 6043-6048, 2012.

24. Hong Wang, Yonghua Zhou, Yangpeng Wang, Wei Wang and Xu Yang. Traffic signal predictive control based on cellular automata prediction model and non-analytical optimization. Advanced Materials Research, vol. 433-440, pp. 2831-2836, 2012.

25. Yonghua Zhou and Yangpeng Wang. Coordinated Control among High-speed Trains Based on Model Predictive Control. Key Engineering Materials, vol. 467-469, pp. 2143-2148, 2011.

26. Chao Mi and Yonghua Zhou. The Integration Framework of Train Scheduling and Control Based on Model Predictive Control. Communications in Computer and Information Science, vol. 236, pp. 492-499, 2011.

27. Yonghua Zhou, Xu Yang and Wei Wang. Data-driven route guidance under the framework of model predictive control. IEEE International Conference on Computer Science and Information Technology, 9-11 July, 2010, Chengdu, China, pp. 378-383.

专著/译著

1. 周永华，付文秀． CTC系统原理与应用．北京：中国铁道出版社，2017.
2. 魏学业，周永华，祝天龙．传感器应用技术及其范例．北京：清华大学出版社，2015.

专利

软件著作权

获奖与荣誉

2016年：北京交通大学优秀教学成果二等奖，获奖项目：轨道交通信号与控制国家卓越工程师培养岗位实习的教学组织与实施

2016年：北京交通大学优秀教学成果二等奖，获奖项目：轨道交通信号与控制国家卓越工程师培养序列教材（教材）

2016年：北京交通大学优秀教学成果二等奖，获奖项目：充分利用校外实践资源培养卓越工程师的研究

2016年：北京交通大学优秀教学成果二等奖，获奖项目：面向卓越工程师计划和专业认证的信号专业实习体系建设

2012年：北京交通大学教学成果一等奖，获奖项目：大力开展学科竞赛与创新实验，全面优化《微机原理与接口技术》实践教学

2012年：北京交通大学教学成果二等奖，获奖项目：教研结合培养创新人才 《计算机控制系统》教学实践

2008年：北京交通大学《微机原理与接口技术》教学成果二等奖

2003年：中国电子学会电子信息科学技术奖一等奖，获奖项目：基于中国国情的集成系统体系结构、实施方法论研究及其应用

社会兼职