

WENJIE CHEN (陈文杰)

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教育背景

- 博士** **美国加州大学伯克利分校** **机械工程** **08/2012**
毕业论文: 非匹配动力学和非匹配感知下的机器人智能控制
导师: Professor Masayoshi Tomizuka
- 硕士** **美国加州大学伯克利分校** **机械工程** **05/2009**
毕业论文: 利用关节传感器信息融合的非直驱传动链的混合自适应摩擦补偿
导师: Professor Masayoshi Tomizuka
- 学士** **浙江大学** **机械电子工程** **06/2007**
排名: 1/55 (专业) 辅修: 工程教育高级班(从6000多本科生中选拔63人)
毕业论文: 两轴直线驱动平台的协调运动控制
导师: 姚斌教授, 王庆丰教授

工作经历

- 发那科株式会社** **基础研究所 机器人软件研究部** **主任** **10/2017 – 现在**
 - 下一代机器人软件研发的技术负责人: 动作规划和控制, 优化和学习等
 - 技术主导与知名大学的前沿机器人研究合作
- 发那科株式会社** **机器人研究所 学习机器人开发部** **主任** **11/2013 – 10/2017**
 - 下一代机器人概念控制器的研发的技术负责人
 - 技术主导与知名大学的前沿机器人研究合作
 - 为现有的学习机器人产品研发提供技术指导和支持
- 美国加州大学伯克利分校** **机械系统控制实验室** **博士后研究员** **08/2012 – 10/2013**
 - 主导脑机交互研究中的外骨骼机器人的设计和控制
 - 主导机械臂的智能控制研究, 包括控制、运动规划、传感器融合、系统建模和辨识等

荣誉和获奖(节选)

- **最佳应用论文提名奖**, 第12届国际自动化科学和工程会议(CASE) **2016**
- **最佳学生论文提名奖**, IEEE/ASME 国际先进智能机电会议(AIM) **2015**
- **最佳学生论文提名奖**, 第6届IFAC国际机电系统论坛(MECHATRONICS) **2013**
- **最佳论文(学习控制分论坛)**, ASME国际动力系统与控制会议(DSCC) **2012**
- **三等奖, Big Ideas @ Berkeley, "The PikaPen"** **04/2012**
"社会信息科技" 类别, 125个参赛团队中的5个优胜团队
- **Block Grant 奖**, 美国加州大学伯克利分校 **01/2011**
- **蒋震海外留学生奖学金**, 中国 **2007 – 2008**
每年从中国的海外留学生中选拔10名

- 浙江省和浙江大学的各种本科生奖项

2002 – 2007

具体请参照: <http://wjchen84.github.io/index.html#Honors>

专业事务

专业奖项评委:

IEEE/IFR IERA Award (机器人和自动化领域的创新和创业精神), 2017

研究计划评委:

香港政府研究资助局(RGC)-外部评委(2013, 2014, 2016, 2017)

杂志编辑委员会:

国际先进机器人系统杂志(IJARS) 编委会委员

学术会议委员会:

程序委员会, 2016 ASME 国际柔性自动化论坛(ISFA);

编委, 2016 美国控制会议(ACC);

编委, 2015 ASME 国际动力系统和控制会议(DSCC);

编委, 2015 美国控制会议(ACC);

主题分论坛组织者, 2014 ASME 国际动力系统和控制会议(DSCC);

程序委员会, 2013 IEEE 国际信息和自动化会议(ICIA);

程序委员会, 2013 IEEE 国际机器人和仿生学会议(ROBIO)

杂志审稿人:

IEEE Transactions on Robotics (T-RO), IEEE Transactions on Industrial Electronics (TIE), IEEE/ASME Transactions on Mechatronics (TMECH), IEEE Transactions on Control Systems Technology (TCST), IEEE Transactions on Automation Science and Engineering (T-ASE), ASME Journal of Dynamic Systems, Measurement, and Control (JDSMC), Robotics and Computer Integrated Manufacturing (Elsevier-RCIM), Robotics and Autonomous Systems (RAS), International Journal of Advanced Robotic Systems (IJARS), Advanced Robotics (RSJ-AR), Asian Journal of Control (AJC), Control and Cybernetics, Sensors (MDPI Journal), Journal of Zhejiang University Science C (Computers & Electronics) (ZUSC)

学术会议审稿人:

American Control Conference (ACC), IEEE Conference on Decision and Control (CDC), IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), IEEE International Conference on Robotics and Automation (ICRA), IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM), ASME Dynamic Systems and Control Conference (DSCC), ASME International Symposium on Flexible Automation (ISFA), IFAC Symposium on Robot Control (SY-ROCO), IEEE International Conference on Information and Automation (ICIA), IEEE International Conference on Robotics and Biomimetics (ROBIO)

专利

1. 具备计算传感器的位置和方向的功能的机器人系统

JP-6174654 (已授权), US-15/281084 (审批中), CN-201610811511.0 (审批中), DE-102016012065.7 (审批中)

2. 物体的姿势计算系统

- JP-6208724 (已授权)*, *US-15/259118 (审批中)*, *CN-201610814842.X (审批中)*, *DE-102016116404.6 (审批中)*
3. 具备学习功能的机器人装置
JP-2016225207 (审批中), *US-15/405190 (审批中)*, *CN-201710025546.6 (审批中)*, *DE-102017000063.8 (审批中)*
 4. 机器人控制装置
JP-2016159895 (审批中), *US-15/676503 (审批中)*, *CN-201710687596.0 (审批中)*, *DE-102017118276.4 (审批中)*
 5. 具备学习控制功能的机器人系统及其学习控制方法
JP-2017026317 (审批中)
 6. 机器人轨迹自动生成的设备、系统和方法
JP-2017077711 (审批中)
 7. 形状识别和机器人程序生成的设备和方法
JP-2017104819 (审批中)
 8. 机械手控制装置、方法和仿真设备
JP-2017129480 (审批中)
 9. 机器人系统
JP-2017164063 (审批中)

论文

杂志论文

7. Junkai Lu, Kevin Haninger, **Wenjie Chen**, Masayoshi Tomizuka, Suraj Gowda, and Jose M. Carmena, "Design of a Passive Upper Limb Exoskeleton for Macaque Monkeys," *ASME Journal of Dynamic Systems, Measurement, and Control*, 138(11), 111011 (Jul 27, 2016); doi: 10.1115/1.4033837
6. Pedro Reynoso-Mora, **Wenjie Chen**, and Masayoshi Tomizuka, "A Convex Relaxation for the Time-optimal Trajectory Planning of Robotic Manipulators along Predetermined Geometric Paths," *Optimal Control Applications and Methods*, vol. 37, no. 6, pp. 1263–1281, Nov./Dec. 2016; doi: 10.1002/oca.2234
5. **Wenjie Chen**, Kyoungchul Kong, and Masayoshi Tomizuka, "Dual-Stage Adaptive Friction Compensation for Precise Load Side Position Tracking of Indirect Drive Mechanisms," *Control Systems Technology, IEEE Transactions on*, vol. 23, no. 1, pp. 164–175, Jan. 2015; doi: 10.1109/TCST.2014.2317776
4. **Wenjie Chen**, and Masayoshi Tomizuka, "Dual-Stage Iterative Learning Control for MIMO Mismatched System with Application to Robots with Joint Elasticity," *Control Systems Technology, IEEE Transactions on*, vol. 22, no. 4, pp. 1350–1361, July 2014; doi: 10.1109/TCST.2013.2279652
3. **Wenjie Chen**, and Masayoshi Tomizuka, "Direct Joint Space State Estimation in Robots with Multiple Elastic Joints," *Mechatronics, IEEE/ASME Transactions on*, vol. 19, no. 2, pp. 697–706, April 2014; doi: 10.1109/TMECH.2013.2255308
2. **Wenjie Chen**, and Masayoshi Tomizuka, "Comparative Study on State Estimation in Elastic Joints," *Asian Journal of Control*, vol. 16, no. 3, pp. 818–829, May 2014; doi: 10.1002/asjc.755

1. Jonathan Asensio, **Wenjie Chen**, and Masayoshi Tomizuka, "Feedforward Input Generation Based on Neural Network Prediction in Multi-Joint Robots," *Journal of Dynamic Systems, Measurement, and Control*, 136(3), 031002, May 2014; doi:10.1115/1.4025986

会议论文

26. Yongxiang Fan, Wei Gao, **Wenjie Chen**, and Masayoshi Tomizuka, "Real-Time Finger Gaits Planning for Dexterous Manipulation," in *Proceedings of the 20th World Congress of the International Federation of Automatic Control (IFAC)*, Toulouse, France, July 9–14, 2017
25. Chung-Yen Lin, **Wenjie Chen**, and Masayoshi Tomizuka, "Learning Control for Task Specific Industrial Robots," in *Proceedings of the 55th IEEE Conference on Decision and Control (CDC)*, Las Vegas, USA, December 12–14, 2016
24. Te Tang, Changliu Liu, **Wenjie Chen**, and Masayoshi Tomizuka, "Robotic Manipulation of Deformable Objects by Tangent Space Mapping and Non-Rigid Registration," in *Proceedings of the 2016 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, Deajeon, Korea, pp. 2689–2696, October 9–14, 2016
23. Yu Zhao, **Wenjie Chen**, Te Tang, and Masayoshi Tomizuka, "Zero Time Delay Input Shaping for Smooth Settling of Industrial Robots," in *Proceedings of the 12th Conference on Automation Science and Engineering (CASE, ISAM 2016)*, Fort Worth, TX, USA, August 21–24, 2016
22. Te Tang, Hsien-Chung Lin, Yu Zhao, **Wenjie Chen**, and Masayoshi Tomizuka, "Autonomous Alignment of Peg and Hole by Force/Torque Measurement for Robotic Assembly," in *Proceedings of the 12th Conference on Automation Science and Engineering (CASE, ISAM 2016)*, Fort Worth, TX, USA, August 21–24, 2016 (**Best Application Paper Finalist**)
21. Te Tang, Hsien-Chung Lin, Yu Zhao, Yongxiang Fan, **Wenjie Chen**, and Masayoshi Tomizuka, "Teach Industrial Robots Peg-Hole-Insertion by Human Demonstration," in *Proceedings of the 2016 IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM)*, Banff, Alberta, Canada, July 12–15, 2016
20. Yongxiang Fan, Hsien-Chung Lin, Yu Zhao, Chung-Yen Lin, Te Tang, Masayoshi Tomizuka, and **Wenjie Chen**, "Object Position and Orientation Tracking for Manipulators Considering Unnegligible Sensor Physics," in *Proceedings of the 2016 International Symposium on Flexible Automation (ISFA)*, Cleveland, USA, August 1–3, 2016
19. Chung-Yen Lin, Yu Zhao, Masayoshi Tomizuka, and **Wenjie Chen**, "Path-Constrained Trajectory Planning for Robot Service Life Optimization," in *Proceedings of the 2016 American Control Conference (ACC)*, Boston, MA, USA, July 6–8, 2016
18. Hsien-Chung Lin, Te Tang, Yongxiang Fan, Yu Zhao, Masayoshi Tomizuka, and **Wenjie Chen**, "Robot Learning from Human Demonstration with Remote Lead through Teaching," in *Proceedings of the 2016 European Control Conference (ECC)*, Aalborg, Denmark, June 29–July 1, 2016
17. Hsien-Chung Lin, Te Tang, Masayoshi Tomizuka, and **Wenjie Chen**, "Remote Lead Through Teaching by Human Demonstration Device," in *Proceedings of the 8th ASME Dynamic Systems and Control Conference (DSCC)*, Columbus, Ohio, USA, October 28–30, 2015
16. Junkai Lu, Kevin Haninger, **Wenjie Chen**, and Masayoshi Tomizuka, "Design and Torque-Mode Control of a Cable-Driven Rotary Series Elastic Actuator for Subject-Robot Interac-

- tion,” in *Proceedings of the IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM)*, Busan, Korea, pp. 158–164, July 7–11, 2015 (**Best Student Paper Finalist**)
15. Junkai Lu, **Wenjie Chen**, Kevin Haninger, and Masayoshi Tomizuka, ”A Passive Upper Limb Exoskeleton for Macaques in a BMI Study – Kinematic Design, Analysis, and Calibration,” in *Proceedings of the 7th ASME Dynamic Systems and Control Conference (DSCC)*, San Antonio, Texas, USA, October 22–24, 2014
 14. Kevin Haninger, Junkai Lu, **Wenjie Chen**, and Masayoshi Tomizuka, ”Kinematic Design and Analysis for a Macaque Upper-Limb Exoskeleton with Shoulder Joint Alignment,” in *Proceedings of the 2014 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, Chicago, Illinois, USA, pp. 478–483, September 14–18, 2014
 13. Yizhou Wang, **Wenjie Chen**, Masayoshi Tomizuka, and Badr N. Alsuwaidan, ”Model Predictive Sliding Mode Control – for Constraint Satisfaction and Robustness,” in *Proceedings of the 6th ASME Dynamic Systems and Control Conference (DSCC)*, Palo Alto, CA, October 21–23, 2013
 12. Chung-Yen Lin, **Wenjie Chen**, and Masayoshi Tomizuka, ”Automatic Sensor Frame Identification in Industrial Robots with Joint Elasticity,” in *Proceedings of the 6th ASME Dynamic Systems and Control Conference (DSCC)*, Palo Alto, CA, October 21–23, 2013
 11. Pedro Reynoso-Mora, **Wenjie Chen**, and Masayoshi Tomizuka, ”On the Time-optimal Trajectory Planning and Control of Robotic Manipulators Along Predefined Paths,” in *Proceedings of the 2013 American Control Conference (ACC)*, Washington, DC, pp. 371–377, June 17–19, 2013
 10. Chi-Shen Tsai, **Wenjie Chen**, Daekyu Yun, and Masayoshi Tomizuka, ”Iterative Learning Control for Vibration Reduction in Industrial Robots with Link Flexibility,” in *Proceedings of the 2013 American Control Conference (ACC)*, Washington, DC, June 17–19, 2013
 9. Junkai Lu, **Wenjie Chen**, and Masayoshi Tomizuka, ”Kinematic Design and Analysis of a 6-DOF Upper Limb Exoskeleton Model for a Brain-Machine Interface Study,” in *Proceedings of the 6th IFAC Symposium on Mechatronic Systems (Mechatronics ’13)*, Hangzhou, China, pp. 293–300, April 10–12, 2013 (**Best Student Paper Finalist**)
 8. Yizhou Wang, **Wenjie Chen**, and Masayoshi Tomizuka, ”Extended Kalman Filtering for Robot Joint Angle Estimation Using MEMS Inertial Sensors,” in *Proceedings of the 6th IFAC Symposium on Mechatronic Systems (Mechatronics ’13)*, Hangzhou, China, pp. 406–413, April 10–12, 2013
 7. **Wenjie Chen**, and Masayoshi Tomizuka, ”Iterative Learning Control with Sensor Fusion for Robots with Mismatched Dynamics and Mismatched Sensing,” in *Proceedings of the 2012 ASME Dynamic Systems and Control Conference (DSCC)*, Fort Lauderdale, Florida, USA, pp. 1480–1488, October 17–19, 2012 (**Best Paper in Session Award**)
 6. Jonathan Asensio, **Wenjie Chen**, and Masayoshi Tomizuka, ”Robot Learning Control Based on Neural Network Prediction,” in *Proceedings of the 2012 ASME Dynamic Systems and Control Conference (DSCC)*, Fort Lauderdale, Florida, USA, pp. 1489–1497, October 17–19, 2012

5. **Wenjie Chen**, and Masayoshi Tomizuka, "Load Side State Estimation in Robot with Joint Elasticity," in *Proceedings of the 2012 IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM)*, Kaohsiung, Taiwan, pp. 598–603, July 11–14, 2012
4. **Wenjie Chen**, and Masayoshi Tomizuka, "A Two-Stage Model Based Iterative Learning Control Scheme for a Class of MIMO Mismatched Linear Systems," in *Proceedings of the 2012 ASME International Symposium on Flexible Automation (ISFA)*, St. Louis, Missouri, USA, paper No. ISFA2012–7199, June 18–20, 2012
3. Cong Wang, **Wenjie Chen**, and Masayoshi Tomizuka, "Robot End-effector Sensing with Position Sensitive Detector and Inertial Sensors," in *Proceedings of the 2012 IEEE International Conference on Robotics and Automation (ICRA)*, Saint Paul, Minnesota, USA, pp. 5252–5257, May 14–18, 2012
2. **Wenjie Chen**, and Masayoshi Tomizuka, "Estimation of Load Side Position in Indirect Drive Robots by Sensor Fusion and Kalman Filtering," in *Proceedings of the 2010 American Control Conference (ACC)*, Baltimore, Maryland, USA, pp. 6852–6857, June 30–July 2, 2010
1. **Wenjie Chen**, Kyounghul Kong, and Masayoshi Tomizuka, "Hybrid Adaptive Friction Compensation of Indirect Drive Trains," in *Proceedings of the 2009 ASME Dynamic Systems and Control Conference (DSCC)*, Hollywood, California, USA, pp. 313–320, October 12–14, 2009

演讲

以上会议论文演讲之外

- 05/29/2017 "Robotic Learning in Industrial Applications", in *Workshop "Recent Advances in Dynamics for Industrial Applications"*, the 2017 IEEE International Conference on Robotics and Automation (ICRA), Singapore
- 08/14/2014 "Mechatronic Considerations for Mismatched Robotic Systems", Google Robotics
- 04/10/2013 "EFRI-M3C: A hybrid control systems approach to brain-machine interfaces for exoskeleton control (Overview)", Qiushi Academy for Advanced Studies, Zhejiang University, China
- 03/11/2013 "Mechatronic Considerations for Mismatched Robotic Systems", Department of Mechanical Engineering, Carnegie Mellon University
- 03/04/2013 "Mechatronic Considerations for Mismatched Robotic Systems", Department of Mechanical Engineering, Worcester Polytechnic Institute
- 02/26/2013 "Mechatronic Considerations for Mismatched Robotic Systems", Department of Mechanical Engineering and Engineering Science, University of North Carolina at Charlotte
- 08/09/2012 "Intelligent Control of Robots with Mismatched Dynamics and Mismatched Sensing", *Ph.D. seminar*, University of California, Berkeley
- 03/08/2012 "EFRI-M3C: A hybrid control systems approach to brain-machine interfaces for exoskeleton control (NSF EFRI-M3C 1137267)", *Poster presentation (group work)*, *NSF EFRI Grantees Conference*, Arlington, VA, Mar. 07–09, 2012
- 02/28/2012 "Estimation in Robots with Mismatched Sensing", *The 1st International Workshop between University of California Berkeley and Keio University*, Berkeley, CA
- 04/26/2011 "Disturbance Cancellation Schemes for Indirect Drive Robot Manipulator", FANUC Corporation, Japan

Updated on November 1, 2017

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