

CURRICULUM VITAE

Jingang Yi

Rutgers, The State University of New Jersey
Department of Mechanical and Aerospace Engineering
Engineering D-157, 98 Brett Road, Piscataway, NJ 08854-8058
Tel: 848-445-3282, Fax: 732-445-3124, E-mail: jgyi@rutgers.edu, <http://coewww.rutgers.edu/~jgyi>

EDUCATION

Ph.D.	<i>Mechanical Engineering, University of California at Berkeley</i>	<i>May 2002</i>
M.A.	<i>Mathematics, University of California at Berkeley</i>	<i>December 2001</i>
M.Eng.	<i>Precision Instruments, Tsinghua University (China)</i>	<i>June 1996</i>
B.S.	<i>Electrical Engineering, Zhejiang University (China)</i>	<i>June 1993</i>

RESEARCH INTERESTS

- Autonomous robotic systems
 - ▷ autonomous vehicles/robots
 - ▷ rehabilitation robotic systems
 - ▷ human/robot interactions
 - ▷ underwater robotic systems
- Dynamic systems and controls
 - ▷ nonlinear, robust, and adaptive control system design
 - ▷ cooperative and formation control
 - ▷ modeling and control of distributed-parameter systems
 - ▷ smart materials/structures and vibration control
- Automation science and engineering
 - ▷ automation for micro-/nano-systems
 - ▷ civil infrastructure automation
 - ▷ semiconductor manufacturing automation
 - ▷ intelligent transportation systems

HONORS / AWARDS

- 2015 Best New Applications Paper Award, *IEEE Transactions on Automation Science and Engineering*
- 2015 Distinguished Visiting Scholars, *University of Technology, Sydney (UTS), Australia*
- *Shanghai Eastern Scholar (Visiting Professor), City of Shanghai, China, 2015 - 2017*
- *Overseas Collaborative Research Award, National Natural Science Foundation of China, 2014 - 2015*
- 2014 ASCE Charles Pankow Award for Innovation (for developing RABIT™ bridge deck assessment tool)
- Finalist, Best Conference Paper Award, 2013 *IEEE/ASME Int. Conf. on Advanced Intelligent Mechatronics*
- The 2013 *Rutgers Board of Trustees Research Fellowship for Scholarly Excellence*
- Semi-plenary speaker, 2012 *ASME Dynamic Systems and Control/11th Motion & Vibration Control Conf.*
- *National Science Foundation CAREER Award (2010-2016)*
- Finalist, Best Conference Paper Award, 2008 *IEEE International Conf. on Automation Science and Engineering*
- Finalist, Best Conference Paper Award, 2007 *IEEE International Conf. on Automation Science and Engineering*
- Kayamori Best Paper Award, 2005 *IEEE International Conference on Robotics and Automation*
- Guanghua Fellowship, *Tsinghua University, 1995*

- Excellent students fellowship, Zhejiang University, 1989-1993

HONORS/ AWARDS FOR SUPERVISED STUDENTS

- Best Student Paper Award, 2015 IEEE/ASME International Conference on Advanced Intelligent Mechatronics
- 2014 ASME Dynamic Systems and Control Division Best Student Paper on Mechatronics
- Finalist, Best Student Paper Award, 2014 ASME Dynamic Systems and Control Conference
- Finalist, Best Student Paper Award, 2014 IEEE/ASME Int. Conf. on Advanced Intelligent Mechatronics
- Finalist, Best Conference Paper Award, 2013 IEEE/ASME Int. Conf. on Advanced Intelligent Mechatronics
- Best Student Paper Award, 2012 ASME Dynamic Systems and Control/11th Motion & Vibration Control Conf.
- Best Student Paper Award, 2012 IEEE/ASME International Conference on Advanced Intelligent Mechatronics
- Finalist, Best Student Paper Award, 2008 ASME Dynamic Systems and Control Conference

TEACHING EXPERIENCE

- **Instructor**

Department of Mechanical and Aerospace Engineering, Rutgers University *Fall 2008 – present*

- ▷ **Byrne Freshmen Seminar:** Robotics: The past, the present, the future (*Springs 2010, 2016, 2017*)
- ▷ **GE 222:** Engineering mechanics: Dynamics (*Fall 2009*)
- ▷ **MAE 349/350:** Measurement laboratory (*Fall 2014*)
- ▷ **MAE 361:** Introduction to mechatronics (*Springs 2011-2014*)
- ▷ **MAE 401:** Dynamic systems and control (*Spring 2017*)
- ▷ **MAE 435:** Energy systems laboratory (*Springs 2009, 2010*)
- ▷ **MAE 486:** Design of mechanical systems (*Fall 2010*)
- ▷ **MAE 504:** Advanced control I (*Falls 2012, 2015, 2016*)
- ▷ **ECE 506:** Control systems II (co-teach, *Fall 2009*)
- ▷ **MAE 512:** Robotics and mechatronics (*Falls 2013, 2015*)
- ▷ **MAE 524:** Optimal design in mechanical engineering (*Falls 2008, 2011; Spring 2010*)
- ▷ **MAE 602:** Independent study: Nonlinear systems and control (*Spring 2016*)
- ▷ **MAE 618:** Special applications in control: Nonlinear systems and control (*Spring 2011*)

Department of Mechanical Engineering, San Diego State University *Spring 2007 – Spring 2008*

- ▷ **ME 330:** Control systems laboratory (*Springs 2007, 2008*)
- ▷ **ME 530:** Automatic control systems (*Fall 2007*)
- ▷ **ME 621:** Mechanical vibrations (*Spring 2008*)
- ▷ **ME 632:** Advanced topics in automatic control (*Fall 2007*)

Department of Mechanical Engineering, Texas A&M University *Spring 2005 – Fall 2006*

- ▷ **ENGR 211:** Conservation principles for engineering mechanics (*Fall 2005*)
- ▷ **ENGR 221:** Introduction to engineering mechanics (*Fall 2005*)
- ▷ **MEEN 221/289:** Statics & dynamics (*Spring 2006, Summer 2006*)
- ▷ **MEEN 363:** Dynamics and vibrations (*Spring 2006*)
- ▷ **MEEN 364:** Dynamic systems and controls (*Spring 2005*)
- ▷ **MEEN 404:** Engineering laboratory (*Spring 2006*)
- ▷ **MEEN 431:** Advanced system dynamics and controls (*Spring 2005; Falls 2005, 2006*)
- ▷ **MEEN 651:** Control system design (*Fall 2006*)

Departments of Mechanical Engineering, University of California at Berkeley *Spring 2002*

- ▷ **ME 107B:** Mechanical engineering laboratory

- **Teaching assistant**

Departments of Mechanical Engineering and Mathematics, University of California at Berkeley *Fall 2000 – Fall 2001*

- ▷ **ME 134:** Automatic control system (*Spring 2001, Fall 2001*)
- ▷ **MATH 1A:** Calculus (*Fall 2000*)

RESEARCH EXPERIENCE

- **Associate professor (with tenure)** *July 2013 – present*
Assistant professor *July 2008 – June 2013*
Department of Mechanical and Aerospace Engineering, Rutgers University
- **Graduate faculty member** *December 2011 – present*
Department of Electrical and Computer Engineering, Rutgers University
- **Director** *August 2008 – present*
Robotics, Automation, and Mechatronics (RAM) Lab, Rutgers University
- **Guest Associate Professor (Global)** *September 2016 – March 2017*
Graduate School of Science and Technology, Keio University, Japan
- **UTS distinguished visiting scholars** *March 2015 – April 2015*
Centre for Autonomous Systems, University of Technology, Sydney (UTS), Australia
- **Assistant professor** *January 2007 – June 2008*
Department of Mechanical Engineering and Comp. Science Research Center, San Diego State University
- **Visiting assistant professor** *January 2005 – December 2006*
Department of Mechanical Engineering, Texas A&M University
- **Systems engineer** *May 2002 – December 2004*
CMP/Cleaning Technology and New Product Development Divisions, Lam Research Corporation
- **Graduate research assistant** *September 1996 – May 2002*
Department of Mechanical Engineering, University of California at Berkeley and California PATH
- **Graduate research assistant** *September 1993 – July 1996*
Sensors and Instrumentation Laboratory, Department of Precision Instruments, Tsinghua University
- **Undergraduate research assistant** *September 1992 – June 1993*
Institute of Electrical Machines and Drives, Department of Electrical Engineering, Zhejiang University

PUBLICATIONS *

- **Book chapters**
 - B4. Y. Zhang, J. Yi and D. Song, (2014). Dynamic Modeling of Riderless Motorcycles, In *Modelling, Simulation and Control of Two-Wheeled Vehicles*, M. Tanelli, M. Corno, and S. M. Savaresi (Ed.), John Wiley & Sons, Ltd, London, UK, pp 43-58.
 - B3. Y. Zhang, J. Yi and D. Song, (2014). Autonomous Control of Riderless Motorcycles, In *Modelling, Simulation and Control of Two-Wheeled Vehicles*, M. Tanelli, M. Corno, and S. M. Savaresi (Ed.), John Wiley & Sons, Ltd, London, UK, pp 293-318.
 - B2. D. Song, H. Lee, and J. Yi, (2008). On the Analysis of the Depth Error on the Road Plane for Monocular Vision-Based Robot Navigation, *Algorithmic Foundations for Robotics VIII*, Springer Tracts on Advanced Robotics, Springer, New York.
 - B1. C. Canudas de Wit, P. Tsiotras, X. Claeys, J. Yi and R. Horowitz, (2003). Tire/Road Friction Modeling, Estimation and Optimal Braking Control. In *Nonlinear and Hybrid Systems for Automotive Control*, R. Johansson and A. Rantzer (Eds.), Springer-Varleg, London.
- **Journal papers that have appeared or been accepted**
 - J45. T. Li, Q. Li, T. Liu[†], and J. Yi (2016). A simple model for predicting walking energetics with elastically-suspended backpack. Accepted to *Journal of Biomechanics*.
 - J44. X. Lu, K. Yu, Y. Zhang, J. Yi[†], and J. Liu (2016). Whole-body pose estimation in physical rider-bicycle interactions with a monocular camera and wearable gyroscopes. Conditionally accepted to *ASME Journal of Dynamic Systems, Measurement and Control*.

*Underlined authors are postdocs, graduate students, or undergraduate students under my supervision. The name with a “†” symbol indicates the corresponding author.

- J43. W.-J. Tao, Y.-X. Jia, T. Liu[†], J. Yi, H. Wang, and Y. Inoue (2016). A novel wheel-track hybrid electric powered wheelchair for stairs climbing. *JSME Journal of Advanced Mechanical Design, Systems, and Manufacturing*, vol. 10, no. 4, pp JAMDSM0060.
- J42. K. Yu, J. Yi[†], and J. W. Shan (2016). Simultaneous multiple-nanowire motion control, planning and manipulation under electric-fields in fluid suspension. *IEEE Trans. on Automation Science and Engineering*, in press.
- J41. C. Akin, J. Yi, L. C. Feldman, C. Durand, S. M. Hus, A.-P. Li, H. Y. Hui, M. A. Filler, and J. W. Shan[†] (2016). High-throughput determination of electrical conductivity of one-dimensional nanomaterials by contactless, solution-based electro-orientation spectroscopy. *Lab on a Chip*, vol. 16, no. 11, pp 2126-2134.
- J40. Y. Liu, H. Han, T. Liu[†], J. Yi, Q. Li, Y. Inoue (2016). A novel tactile sensor with electromagnetic induction for stick-slip interaction testing on a wafer transfer robot. *Sensors*, vol. 16, no. 4, paper 430.
- J39. K. Chen, Y. Zhang, J. Yi[†], and T. Liu (2016). An Integrated physical-learning model of physical human-robot interactions with application to pose estimation in bikebot riding. *International Journal of Robotics Research*, vol. 35, no. 12, pp. 1459-1476.
- J38. W. Tao, J. Zhang, G. Li, T. Liu, F. Liu, J. Yi, H. Wang and Y. Inoue (2016). A wearable sensor system for lower-limb rehabilitation evaluation using the GRF and CoP distributions. *Measurement Science and Technology*, vol. 27, no. 2, p025701.
- J37. G. Li, T. Liu, J. Yi, H. Wang, J. Li, and Y. Inoue (2016). The Lower limbs kinematics analysis by wearable sensor shoes. *IEEE Sensors Journal*, vol. 16, no. 8, pp. 2627-2638.
- J36. Y. Zhang, K. Chen, J. Yi[†], T. Liu and Q. Pan (2016). Whole-body pose estimation in human bicycle riding using a small set of wearable sensors. *IEEE/ASME Trans. on Mechatronics*, vol. 21, no. 1, pp 163-174.
- J35. C. Akin, J. Yi, L. C. Feldman, C. Durand, A.-P. Li, M. A. Filler, and J. W. Shan (2015). A contactless determination of electrical conductivity of one-dimensional nanomaterials by solution-based electro-orientation spectroscopy. *ACS Nano*, vol. 9, no. 5, pp 5405-5412.
- J34. P. Pandey, D. Pompili, and J. Yi (2015). Dynamic collaboration between networked robots and clouds in resource-constrained environments. *IEEE Trans. on Automation Science and Engineering*, vol. 12, no. 2, pp 471-480. (**Googol Best Applications Paper Award**)
- J33. K. Yu, J. Yi[†], and J. Shan (2015). Motion planning and control of nanowires under electric fields in fluid suspension. *IEEE Trans. on Automation Science and Engineering*, vol. 12, no. 1, pp 37-49.
- J32. C.-Y. Kim, D. Song[†], Y. Xu, J. Yi, and X. Wu (2014). Cooperative search of multiple unknown transient radio sources using multiple paired mobile robots. *IEEE Trans. on Robotics*, vol. 30, no. 5, pp 1161-1173.
- J31. Y. Zhang and J. Yi[†] (2014). Static tire/road stick-slip interactions: Analysis and experiments. *IEEE/ASME Trans. on Mechatronics*, vol. 19, no. 6, pp 1940-1950.
- J30. H. La, R. Lim, B. Basily, N. Gucunski, J. Yi[†], A. Maher, F. Romero, and H. Parvardeh (2013). Mechatronic systems design for an autonomous robotic system for high-efficiency bridge deck inspection and evaluation. *IEEE/ASME Trans. on Mechatronics*, vol. 18, no. 6, pp 1655-1664.
- J29. Y. Zhang, K. Chen, and J. Yi[†] (2013). Rider trunk and bicycle pose estimation with fusion of force/inertial sensors. *IEEE Trans. on Biomedical Engineering*, vol. 60, no. 9, pp 2541-2551.
- J28. Y. Zhang, J. Yi[†], and T. Liu (2013). Embedded flexible force sensor for *in-situ* tire-road interaction measurements. *IEEE Sensors Journal*, vol. 13, no. 5, pp 1756-1765.
- J27. J. Li, Y. Zhang and J. Yi[†] (2013). A hybrid physical-dynamic tire/road friction model. *ASME Journal of Dynamic Systems, Measurement and Control*, vol. 135, no. 1, pp 011007-1–011007-11.
- J26. D. Song[†], C.-Y. Kim, and J. Yi (2012). Simultaneous localization of multiple unknown and transient radio sources using a mobile robot. *IEEE Trans. on Robotics*, vol. 28, no. 3, pp 668-680.
- J25. J. Yi[†], J. Li, J. Lu, and Z. Liu (2012). On the dynamic stability and agility of aggressive vehicle maneuvers: A pendulum-turn maneuver example. *IEEE Trans. on Control Systems Technology*, vol. 20, no. 3, pp 663-676.
- J24. Y. Shi[†], H. Fang, and J. Yi (2011). On stable simultaneous input and state estimation for discrete-time linear systems. *International Journal of Adaptive Control and Signal Processing*, vol. 25, no. 8, pp 671-686.
- J23. D. Song[†], C.-Y. Kim, and J. Yi (2011). On the time to search for an intermittent signal source under a limited sensing range. *IEEE Trans. on Robotics*, vol. 27, no. 2, pp 313-323.
- J22. W.-C. V. Chan[†], J. Yi, and S. Ding (2011). Optimal scheduling of multi-cluster tools with constant robot moving time, Part I: Two-cluster analysis. *IEEE Trans. on Automation Science and Engineering*, vol. 8, no. 1,

pp 5-16.

- J21. W.-C. V. Chan, S. Ding, J. Yi[†], and D. Song (2011). Optimal scheduling of multi-cluster tools with constant robot moving time, Part II: Tree-like cluster configurations. *IEEE Trans. on Automation Science and Engineering*, vol. 8, no. 1, pp 17-28.
- J20. D. Song, C.-Y. Kim, and J. Yi[†] (2009). Simultaneous localization of multiple unknown CSMA-based wireless sensor network nodes using a mobile robot with a directional antenna. *Journal of Intelligent Service Robotics*, vol. 2, no. 4, pp 219-231.
- J19. J. Yi[†], S. Chang, and Y. Shen (2009). Disturbance observer-based hysteresis compensation for piezoelectric actuators. *IEEE/ASME Trans. on Mechatronics*, vol. 14, no. 4, pp 456-464.
- J18. J. Yi[†], H. Wang, J. Zhang, D. Song, S. Jayasuriya, and J. Liu (2009). Kinematic modeling and analysis of skid-steered mobile robots with applications to low-cost inertial measurement unit-based motion estimation. *IEEE Trans. on Robotics*, vol. 25, no. 5, pp 1087-1097.
- J17. A. Mathers, K.S. Moon, and J. Yi[†] (2009). A vibration-based PMN-PT energy harvester. *IEEE Sensors Journal*, vol. 9, no. 7, pp 731-739.
- J16. J. Yi[†] (2008). Friction modeling in linear chemical-mechanical planarization. *IEEE Control Systems Magazine*, vol. 28, no. 5, pp 59-78.
- J15. J. Yi[†] (2008). A piezo-sensor-based "smart tire" system for mobile robots and vehicles. *IEEE/ASME Trans. on Mechatronics*, vol. 13, no. 1, pp 95-103.
- J14. J. Yi[†] and H. Liang (2008). A PVDF-based deformation and motion sensor: Modeling and experiments. *IEEE Sensors Journal*, vol. 8, no. 4, pp 384-391.
- J13. J. Yi[†], S. Ding, D. Song, and M. Zhang (2008). Steady-state throughput and scheduling analysis of multi-cluster tools: A decomposition approach. *IEEE Trans. on Automation Science and Engineering*, vol. 5, no. 2, pp 321-336.
- J12. D. Song[†], H.N. Lee, J. Yi, and A. Levandowski (2007). Vision-based motion planning for an autonomous motorcycle on ill-structured roads. *Autonomous Robots*, vol. 23, no. 3, pp 197-212.
- J11. Y. Song, M. Zhang[†], J. Yi, L. Zhang, and L. Zheng (2007). Bottleneck station scheduling in semiconductor assembly manufacturing using ant colony optimization. *IEEE Trans. on Automation Science and Engineering*, vol. 4, no. 4, pp 569-578.
- J10. S. Ding[†], J. Yi and M. Zhang (2006). Multicenter tools scheduling: An integrated event graph and network model approach. *IEEE Trans. on Semiconductor Manufacturing*, vol. 19, no. 3, pp 339-351.
- J9. J. Yi[†] and R. Horowitz (2006). Macroscopic traffic flow propagation stability for adaptive cruise controlled vehicles. *Transportation Research, Part C*, vol. 14, no. 2, pp 71-85.
- J8. J. Yi[†] (2005). On the wafer/pad friction for chemical-mechanical planarization (CMP) processes, Part I: Modeling and analysis. *IEEE Trans. on Semiconductor Manufacturing*, vol. 18, no. 3, pp 359-370.
- J7. J. Yi[†] (2005). On the wafer/pad friction for chemical-mechanical planarization (CMP) processes, Part II: Experiments and applications. *IEEE Trans. on Semiconductor Manufacturing*, vol. 18, no. 3, pp 371-383.
- J6. J. Yi[†] and C. Xu (2005). Broad-band optical end-point detection for linear chemical-mechanical planarization (CMP) processes using an image matching technique. *Journal Mechatronics*, vol. 15, no. 3, pp 271-290.
- J5. L. Alvarez[†], J. Yi, R. Horowitz, and L. Olmos (2005). Dynamic friction model-based tire-road friction estimation and emergency braking control. *ASME Journal of Dynamic Systems, Measurement and Control*, vol. 127, no. 1, pp 22-32.
- J4. J. Yi[†], Y. Sheng, and C. Xu (2003). Neural network-based uniformity profile control of linear chemical-mechanical planarization (CMP). *IEEE Trans. on Semiconductor Manufacturing*, vol. 16, no. 4, pp 609-620.
- J3. J. Yi, H. Lin, L. Alvarez, and R. Horowitz[†] (2003). Stability of macroscopic traffic flow modeling through wavefront expansion. *Transportation Research, Part B*, vol. 37, no. 7, pp 661-679.
- J2. J. Yi, L. Alvarez X. Claeys, and R. Horowitz[†] (2003). Emergency braking control with an observer-based dynamic tire/road friction model and wheel angular velocity measurement. *Vehicle System Dynamics*, vol. 39, no. 2, pp 81-97.
- J1. J. Yi[†], L. Alvarez, and R. Horowitz (2002). Adaptive emergency brake control with underestimation of friction coefficient. *IEEE Trans. on Control Systems Technology*, vol. 10, no. 3, pp 381-392.
- **Journal papers that are under review**
- JS4. Y. Zhang, K. Song, J. Yi[†], P. Huang, and Z. Duan (2016). Pose estimation with partial absolute attitude

identification of a rigid body and its supporting moving platform using only two gyroscopes and relative measurements. Submitted to *IEEE/ASME Trans. Mechatronics*.

- JS3. M. Trkov, K. Chen, J. Yi[†], and T. Liu (2017). Slip detection and prediction in human walking using only wearable inertial sensors. Submitted to *IEEE Trans. on Neural Systems and Rehabilitation Engineering*.
- JS2. Q. Zhao[†], X. Li, J. Yi, J. Xu, and Y. Wu (2017). Object detection based on color and shape features for service robot in semi-structured indoor environment. Submitted to *Intelligent Service Robotics*.
- JS1. C. Huang, Q. Zhao[†], Z. Ke, and J. Yi (2017). Recognition results classification and post-processing methods for painting characters on billet surface. Submitted to *Advances in Manufacturing*.

• **Refereed conference papers that have appeared or been accepted**

- C106. Y. Zhang, K. Song, J. Yi, Z. Duan, Q. Pan, and P. Huang (2016). Pose estimation with partial absolute attitude identification of a rigid body and its supporting moving platform using two gyroscopes and relative complementary measurements. In *Proceedings of 2016 IEEE/RSJ International Conference on Intelligent Robots and Systems*, Daejeon, Korea, pp 90-95.
- C105. C. Chou, S.-H. Yeh, J. Yi, and D. Song, (2016). Extrinsic calibration of a ground penetrating radar. In *Proceedings of 2016 IEEE International Conference on Automation Science and Engineering*, Dallas, TX, pp 1326-1331.
- C104. K. Yu, J. Yi and J. Shan (2016). Time optimal simultaneously motion planning and manipulation of multiple nanowires under electric-fields in fluid suspension. In *Proceedings of 2016 IEEE International Conference on Automation Science and Engineering*, Dallas, TX, pp 954-959.
- C103. A. Arab, K. Yu, and J. Yi, and D. Song (2016). Motion planning for autonomous aggressive vehicle maneuvers. In *Proceedings of 2016 IEEE International Conference on Automation Science and Engineering*, Dallas, TX, pp 221-226.
- C102. A. Arab, K. Yu, J. Yi, and Y. Liu (2016). Motion control of autonomous aggressive vehicle maneuvers. In *Proceedings of 2016 IEEE International Conference on Advanced Intelligent Mechatronics*, Banff, Canada, pp 1663-1668.
- C101. T. Li, Q. Li, T. Liu, J. Yi, and G. Gong (2016), Development of a novel elastic load-carrying device: Design, modeling and analysis. In *Proceedings of 2016 IEEE International Conference on Advanced Intelligent Mechatronics*, Banff, Canada, pp 1454-1460.
- C100. S. Yang, F. Zhang, L. Fan, L. Sun and J. Yi (2016), Research on pose error relations of parallel radiotherapy bed based on total differential method. In *Proceedings of 2016 IEEE International Conference on Advanced Intelligent Mechatronics*, Banff, Canada, pp 1467-1472.
- C99. Y. Shen, T. Liu, Q. Li, J. Yi (2016). A wearable sensor system for knee adduction moment measurement. In *Proceedings of 2016 IEEE International Conference on Real-Time Computing and Robotics*, Angkor Wat, Cambodia.
- C98. P. Wang and J. Yi, (2016). Balance equilibrium manifold and control of rider-bikebot systems. In *Proceedings of 2016 American Control Conference*, Boston, MA, pp 2168-2174.
- C97. K. Chen, M. Trkov, S. Chen, J. Yi, and T. Liu, (2016). Balance recovery control of human walking with slips. In *Proceedings of 2016 American Control Conference*, Boston, MA, pp 4385-4390.
- C96. M. Trkov, H. Han, J. Yi, and Y. Liu, (2015). Stick-slip interactions of the soft-solid contact: An integrated LuGre/beam network model approach. In *Proceedings of 2015 ASME Dynamic Systems and Control Conference*, Columbus, OH, Paper DSCC2015-10002.
- C95. K. Yu, J. Yi, and J. Shan, (2015). Simultaneously motion planning and manipulation of multiple nanowires under electric-fields in fluid suspension. In *Proceedings of 2015 IEEE International Conference on Automation Science and Engineering*, Gothenburg, Sweden, pp 489-494.
- C94. K. Chen and J. Yi, (2015). On the relationship between manifold learning latent dynamics and zero dynamics for human bipedal walking. In *Proceedings of 2015 IEEE/RSJ International Conference on Intelligent Robots and Systems*, Hamburg, Germany, pp 971-976.
- C93. M. Trkov, K. Chen, J. Yi and T. Liu, (2015). Slip detection and prediction in human walking only using wearable inertial measurement units (IMUs). In *Proceedings of IEEE/ASME International Conference on Advanced Intelligent Mechatronics*, Busan, Korea, pp 854-859. **(Best Student Paper Award.)**
- C92. Z. Zhu, B. Cong, F. Liu, T. Liu, J. Yi, and Y. Inoue, (2015). Design of respiratory training robot in rehabilitation of chronic obstructive pulmonary disease. In *Proceedings of IEEE/ASME International Conference on Advanced Intelligent Mechatronics*, Busan, Korea, pp 866-870.

- C91. K. Chen, M. Trkov, J. Yi, and T. Liu (2015). A robotic bipedal model for human walking with slips. In *Proceedings of IEEE International Conference on Robotics and Automation*, Seattle, WA, pp 6301-6306.
- C90. I. Abraham and J. Yi (2015). Model predictive control of buoyancy-driven autonomous underwater gliders. In *Proceedings of American Control Conference*, Chicago, IL, pp 1181-1186.
- C89. P. Wang and J. Yi (2015). Dynamic stability of a rider-bicycle system: Analysis and experiments. In *Proceedings of American Control Conference*, Chicago, IL, pp 1161-1166.
- C88. T. Li, T. Liu, G. Li, W. Tao, Y. Inoue and J. Yi (2014). A novel parallel mechanism designed for walking assistance. In *Proceedings of IEEE International Conference on Robotics and Biomimetics*, Bali, Indonesia, pp 980-985.
- C87. G. Li, T. Liu, T. Li, Y. Inoue and J. Yi (2014). Neural network-based gait assessment using measurements of a wearable sensor system. In *Proceedings of IEEE International Conference on Robotics and Biomimetics*, Bali, Indonesia, pp 1673-1678.
- C86. M. Trkov, J. Yi, T. Liu, and K. Li (2014). Shoe-floor interactions during human slip and fall: Modeling and experiments. In *Proceedings of ASME Dynamic Systems and Control Conference*, San Antonio, TX, DSCC2014-6184.
- C85. A. Arab, J. Yi, M. M. Fateh, and S. Arabshahi (2014). Robust control of a low-cost mobile robot using a neural network uncertainty compensator. In *Proceedings of ASME Dynamic Systems and Control Conference*, San Antonio, TX, DSCC2014-6190.
- C84. K. Chen, Y. Zhang, and J. Yi (2014). An integrated physical-learning model of physical human-robot interactions: A bikebot riding example. In *Proceedings of ASME Dynamic Systems and Control Conference*, San Antonio, TX, DSCC2014-6007. (**Best Student Paper Award finalist, ASME DSCD Best Student Paper on Mechatronics Award.**)
- C83. Y. Zhang, K. Chen, J. Yi, and L. Liu (2014). Pose estimation in physical human-machine interactions with application to bicycle riding. In *Proceedings of IEEE/RSJ International Conference Intelligent Robots and Systems*, Chicago, IL, pp 3333-3338.
- C82. H. La, N. Gucunski, S.-H. Kee, J. Yi, T. Senlet and L. Nguyen (2014). Autonomous robotic system for bridge deck data collection and analysis. In *Proceedings of IEEE/RSJ International Conference Intelligent Robots and Systems*, Chicago, IL, pp 1950-1955.
- C81. X. Lu, K. Yu, Y. Zhang, J. Yi, and J. Liu (2014). Whole-body pose estimation in physical rider-bicycle interactions with a monocular camera and a set of wearable gyroscopes. In *Proceedings of IEEE/RSJ International Conference Intelligent Robots and Systems*, Chicago, IL, pp 4124-4129.
- C80. K. Yu, J. Shan, and J. Yi (2014). Motion control and manipulation of nanowires under electric-fields in fluid suspension. In *Proceedings of IEEE/ASME International Conference on Advanced Intelligent Mechatronics*, Besançon, France, pp 366-371. (**Best Student Paper Award finalist.**)
- C79. Y. Lu, D. Song, and J. Yi (2014). High level landmark-based visual navigation using unsupervised geometric constraints in local bundle adjustment. In *Proceedings of IEEE International Conference Robotics and Automation*, Hong Kong, China, pp 1540-1545.
- C78. Y. Zhang, P. Wang, J. Yi, D. Song and T. Liu (2014). Stationary balance control of a bikebot. In *Proceedings of IEEE International Conference Robotics and Automation*, Hong Kong, China, pp 6706-6711.
- C77. X. Lu, Y. Zhang, K. Yu, J. Yi, and J. Liu (2013). Upper limb pose estimation in rider-bicycle interactions with an un-calibrated monocular camera and wearable gyroscopes. In *Proceedings of 2013 ASME Dynamic Systems and Control Conference*, Palo Alto, CA, DSCC2013-3839.
- C76. K. Yu, X. Lu, J. Yi, and J. Shan (2013). Electrophoresis-based motion planning and control of nanowires in suspended fluids. In *Proceedings of 2013 IEEE International Conference on Automation Science and Engineering*, Madison, WI, pp 831-836.
- C75. F. Liu, M. Trkov, J. Yi, and N. Gucunski (2013). Modeling and mechatronic design of rotary percussive drilling for autonomous robotic bridge decks rehabilitation. In *Proceedings of 2013 IEEE International Conference on Automation Science and Engineering*, Madison, WI, pp 1075-1080.
- C74. H. La, R. Lim, B. Basily, N. Gucunski, J. Yi, A. Maher, F. Romero, and H. Parvardeh (2013). Autonomous robotic system for high-efficiency non-destructive bridge deck inspection and evaluation. In *Proceedings of 2013 IEEE International Conference on Automation Science and Engineering*, Madison, WI, pp 1065-1070.
- C73. K. Chen, Y. Zhang, and J. Yi (2013). Modeling rider/bicycle interactions with learned dynamics on constrained embedding manifolds. In *Proceedings of 2013 IEEE/ASME International Conference on Advanced*

- Intelligent Mechatronics*, Wollongong, Australia, pp 442-447. **(Best Conference Paper Award finalist.)**
- C72. Y. Zhang, K. Chen, and J. Yi (2013). Dynamic rider/bicycle pose estimation with force/IMU measurements. In *Proceedings of 2013 American Control Conference*, Washington, DC, pp 2846-2851.
- C71. H. Wang, P. Singh, and J. Yi (2013). Dynamic model-aided localization of underwater autonomous gliders. In *Proceedings of 2013 IEEE International Conference on Robotics and Automation*, Karlsruhe, Germany, pp 5545-5550.
- C70. C.-Y. Kim, D. Song, and J. Yi (2013). Decentralized searching of multiple unknown and transient radio sources. In *Proceedings of 2013 IEEE International Conference on Robotics and Automation*, Karlsruhe, Germany, pp 919-924.
- C69. Y. Zhang and J. Yi (2012). Tire/road stick-slip interactions: Analysis and experiments. In *Proceedings of 2012 ASME Dynamic Systems and Control Conference*, Ft. Lauderdale, FL, DSCC2012/MOVIC2012-8619. **(Best Student Paper Award, Semi-plenary presentation.)**
- C68. J. Yi, D. Soudbakhsh, Y. Zhang and Y. Zhang (2012). Why some Parkinson's disease patients cannot stand or walk but can ride a bicycle – A control system-based analysis. In *Proceedings of 2012 ASME Dynamic Systems and Control Conference*, Ft. Lauderdale, FL, DSCC2012/MOVIC2012-8735.
- C67. Y. Zhang, A. W. Allen, J. Yi and T. Liu (2012). Understanding tire/road stick-slip interactions with embedded rubber force sensors. In *Proceedings of 2012 IEEE/ASME International Conference on Advanced Intelligent Mechatronics*, Kaohsiung, Taiwan, pp 550-555.
- C66. Y. Zhang, F. Liu, M. Trkov and J. Yi (2012). Human rider/bicycle pose estimation in bicycling with integrated IMU/force sensor measurements. In *Proceedings of 2012 IEEE/ASME International Conference on Advanced Intelligent Mechatronics*, Kaohsiung, Taiwan, pp 604-609. **(Best Student Paper Award.)**
- C65. D. Soudbakhsh, Y. Zhang, and J. Yi (2012). Stability analysis of human balance control of stationary bicycles. In *Proceedings of the 2012 American Control Conference*, Montreal, Canada, pp 2755-2760.
- C64. J. Yi, J. Li, and H. Lin (2011). Spherical modeling and nonlinear model predictive control of electroporation. In *Proceedings of the 2011 ASME Dynamic Systems and Control Conference*, Arlington, VA, DSCC2011-5984.
- C63. J. Li and J. Yi (2011). Vehicle motion stability with two vehicle dynamics models. In *Proceedings of the 2011 ASME Dynamic Systems and Control Conference*, Arlington, VA, DSCC2011-6195.
- C62. J. Li, Y. Zhang, J. Yi, and Z. Liu (2011). Understanding agile-maneuver driving strategies using coupled longitudinal/lateral vehicle dynamics. In *Proceedings of the 2011 ASME Dynamic Systems and Control Conference*, Arlington, VA, DSCC2011-6152.
- C61. Y. Zhang, J. Li, J. Yi and D. Song (2011). Balance control and analysis of stationary riderless motorcycles. In *Proceedings of the 2011 IEEE International Conference on Robotics and Automation*, Shanghai, China, pp 3018-3023.
- C60. C.-Y. Kim, D. Song, Y. Xu, and J. Yi (2011). Localization of multiple unknown transient radio sources using multiple paired mobile robots with limited sensing ranges. In *Proceedings of the 2011 IEEE International Conference on Robotics and Automation*, Shanghai, China, pp 5167-5172.
- C59. Y. Xu, D. Song, and J. Yi (2010). Exact algorithms for non-overlapping 2-frame problem with non-partial coverage for networked robotic cameras. In *Proceedings of 2010 IEEE International Conference on Automation Science and Engineering*, Toronto, Canada, pp 503-508.
- C58. Y. Zhang and J. Yi (2010). Velocity field-based maneuver regulation of autonomous motorcycles. In *Proceedings of the 2010 IFAC Symposium on Mechatronic Systems*, Cambridge, MA, pp 385-392.
- C57. J. Li, J. Yi, Z. Liu and J. Lu (2010). On the dynamic stability and agility of aggressive vehicle maneuvers: A pendulum-turn maneuver example. In *Proceedings of the 2010 ASME Dynamic Systems and Control Conference*, Cambridge, MA, Paper DSCC2010-4032.
- C56. P. Ge, J. Yi, J. Li and H. Lin (2010). Model predictive control of an electroporation process. In *Proceedings of the 2010 ASME Dynamic Systems and Control Conference*, Cambridge, MA, Paper DSCC2010-4243.
- C55. D. Song, C.-Y. Kim, and J. Yi (2010). Stochastic modeling of the expected time to search for an intermittent signal source under a limited sensing range. In *Proceedings of 2010 Robotics Science and Systems*, Zaragoza, Spain.
- C54. Y. Zhang and J. Yi (2010). Modeling and balance control of human/bicycle systems. In *Proceedings of 2010 IEEE/ASME International Conference on Advanced Intelligent Mechatronics*, Montreal, Canada, pp. 1385-1390.

- C53. J. Yi, Y. Zhang, and D. Song (2009). Autonomous motorcycles for agile maneuvers, Part I: Dynamic modeling. In *Proceedings of 48th IEEE International Conference on Decision and Control/28th Chinese Control Conference*, Shanghai, China, pp 4613-4618.
- C52. J. Yi, Y. Zhang, and D. Song (2009). Autonomous motorcycles for agile maneuvers, Part II: Control systems design. In *Proceedings of 48th IEEE International Conference on Decision and Control/28th Chinese Control Conference*, Shanghai, China, pp 4619-4624.
- C51. J. Yi (2009). On the hybrid physical/dynamic tire-road friction model. In *Proceedings of the ASME Dynamic Systems and Control Conference*, Hollywood, CA, Paper DSCC2009-2548.
- C50. J. Yi and E. H. Tseng (2009). Nonlinear analysis of vehicle lateral motions with a hybrid physical/dynamic tire-road friction model. In *Proceedings of the ASME Dynamic Systems and Control Conference*, Hollywood, CA, Paper DSCC2009-2717.
- C49. M.S. Fadali, Y. Shen, S. Jafarzadeh, and J. Yi (2009). Electro-tactile preference Identification using fuzzy logic. In *Proceedings of the 31st IEEE Engineering in Medicine and Biology Conference*, Minneapolis, MN.
- C48. S. Chang, J. Yi, and Y. Shen (2009). Disturbance observer-based hysteresis compensation for piezoelectric micro-actuators. In *Proceedings of the 2009 American Control Conference*, St. Louis, MO, pp 4196-4201.
- C47. D. Song, C.-Y. Kim, and J. Yi (2009). Simultaneous localization of multiple unknown transient radio sources using a mobile robot with a directional antenna. In *Proceedings of the 2009 IEEE International Conference on Robotics and Automation*, Kobe, Japan, pp 3154 - 3159.
- C46. H. Wang, J. Zhang, J. Yi, D. Song, S. Jayasuriya, and J. Liu (2009). Modeling and analysis of skid-steered mobile robots. In *Proceedings of the 2009 IEEE International Conference on Robotics and Automation*, Kobe, Japan, pp 4112-4117.
- C45. D. Song, H. Lee, and J. Yi (2008). On the analysis of the depth error on the road plane for monocular vision-based robot navigation. In *Proceedings of the Eighth International Workshop on the Algorithmic Foundations of Robotics*, Guanajuato, Mexico.
- C44. K.S. Moon, A. Mathers, and J. Yi (2008). Development of a PMN-PT/PDMS vibrational energy harvester. In *Proceedings of SPIE International Symposium on Optomechatronic Technologies*, San Diego, CA, Paper 7266B-210.
- C43. S.J. Cozen, R. Zhang, Y. Shen, N. Xi, and J. Yi (2008). Quantitative biomechanical analysis of Drosophila through the stages of embryogenesis using a sensorized human/robot cooperative interface. In *Proceedings of 2008 IEEE Biomedical Circuits and Systems Conference*, Baltimore, MD, pp 69-72.
- C42. A. Mathers, K.S. Moon, and J. Yi (2008). A PMN-PT/PDMS vibrational energy harvester: Design, modeling and experiments. In *Proceedings of the ASME Dynamic Systems and Control Conference*, Paper DSCC2008-2115, Ann Arbor, MI. (**Best Student Paper Award finalist.**)
- C41. J. Yi and E.H. Tseng (2008). A "smart tire" system for tire/road friction estimation. In *Proceedings of the ASME Dynamic Systems and Control Conference*, Paper DSCC2008-2279, Ann Arbor, MI.
- C40. J. Yi, H. Wang, J. Liu, and D. Song (2008). LMST-based consensus control of multi-robot systems with kinodynamic constraints. In *Proceedings of the ASME Dynamic Systems and Control Conference*, Paper DSCC2008-2216, Ann Arbor, MI.
- C39. J. Zhang, J. Yi, and S. Jayasuriya (2008). A framework for multi-task formation control of nonholonomic robot systems. In *Proceedings of the ASME Dynamic Systems and Control Conference*, Paper DSCC2008-2244, Ann Arbor, MI.
- C38. W.J. Chan, J. Yi, S. Ding, and D. Song (2008). Optimal scheduling of k -unit production of multi-cluster tools with single-blade robots. In *Proceedings of 2008 IEEE International Conference on Automation Science and Engineering*, Washington, DC, pp 335-340. (**Spanision Best Conference Paper Award finalist.**)
- C37. J. Yi, S. Chang, K. Moon, and Y. Shi (2008). Dynamic modeling of an L-shape PMN-PT piezo-based manipulator. In *Proceedings of 2008 American Control Conference*, Seattle, WA, pp 3755-3760.
- C36. H. Fang, Y. Shi, and J. Yi (2008). Simultaneous input and state estimation with a minimum mean square error and minimum variance. In *Proceedings of 2008 American Control Conference*, Seattle, WA, pp 2421-2426.
- C35. Y. Xu, D. Song, J. Yi, and A. F. van der Stappen (2008). An approximation algorithm for the least overlapping p -frame problem with non-partial coverage for networked robotic cameras. In *Proceedings of 2008 IEEE International Conference on Robotics and Automation*, Pasadena, CA, pp 1011-1016.
- C34. K. Moon, J. Yi, Y. Hong, and A. Mather (2007). Design of a PMN-PT-based monolithic nanomanipulator.

- In *Proceedings of 2007 SPIE International Symposium on Optomechatronic Technologies*, Lausanne, Switzerland, vol. 6715, Paper 67150B.
- C33. S. Shahrucz and J. Yi (2007). Design of disturbance observers for multi-input multi-output systems. In *Proceedings of 2007 ASME International Mechanical Engineering Congress & Exposition*, IMECE2007-43117, Seattle, WA.
- C32. S. Shahrucz and J. Yi (2007). Suppression of vibration localization in non-axisymmetric periodic structures. In *Proceedings of 2007 ASME International Mechanical Engineering Congress & Exposition*, IMECE2007-43118, Seattle, WA.
- C31. S. Shahrucz and J. Yi (2007). Efficient and robust synchronization of twin-gyro systems. In *Proceedings of 2007 ASME International Mechanical Engineering Congress & Exposition*, IMECE2007-43119, Seattle, WA.
- C30. S. Shahrucz and J. Yi (2007). Performance of mechanical band-pass filters used in energy scavenging in the presence of fabrication errors and coupling. In *Proceedings of 2007 ASME International Mechanical Engineering Congress & Exposition*, IMECE2007-43123, Seattle, WA.
- C29. W.J. Chan, J. Yi, and S. Ding (2007). On the optimality of one-unit cycle scheduling of multi-cluster tools with single-blade robots. In *Proceedings of 2007 IEEE International Conference on Automation Science and Engineering*. Scottsdale, AZ, pp 392-397. (**Spansion Best Conference Paper Award finalist.**)
- C28. J. Yi, M. Zhang, S. Ding, and P. van der Meulen (2007). Throughput analysis of linear cluster tools. In *Proceedings of 2007 IEEE International Conference on Automation Science and Engineering*. Scottsdale, AZ, pp 1063-1068.
- C27. J. Yi, J. Zhang, D. Song, and S. Jayasuriya (2007). IMU-based localization and slip estimation for skid-steered mobile robots. In *Proceedings of 2007 IEEE/RSJ International Conference on Intelligent Robots and Systems*, San Diego, CA, pp 2845-2850.
- C26. D. Song, J. Yi, and Z. Goodwin (2007). Localization of unknown networked radio sources using a mobile robot with a directional antenna. In *Proceedings of the American Control Conference*. New York, NY, pp 5952-5957.
- C25. J. Yi, D. Song, J. Zhang, and Z. Goodwin (2007). Adaptive trajectory tracking control of skid-steered mobile robots. In *Proceedings of 2007 IEEE International Conference on Robotics and Automation*, Rome, Italy, pp 2605-2610.
- C24. J. Yi, S. Ding, D. Song, and M. Zhang (2007). Multi-robot scheduling in cluster tools with buffer/process modules. In *Proceedings of 2007 IEEE International Conference on Robotics and Automation*, Rome, Italy, pp 985-990.
- C23. S. Ding, J. Yi, M. Zhang, and R. Akhavan-Tabatabaei (2006). Performance evaluation and schedule optimization of multi-cluster tools with stochastic process times. In *Proceedings of 2006 IEEE International Conference on Automation Science and Engineering*, Shanghai, China, pp 112-117.
- C22. D. Song, H.-L. Lee, J. Yi, and A. Levandowski (2006). V^2 -space: vision-based navigation for an autonomous motorcycle on ill-structured road. In *Proceedings of 2006 IEEE/RSJ International Conference on Intelligent Robots and Systems*, Beijing, China, pp 3279-3286.
- C21. J. Yi, D. Song, A. Levandowski, and S. Jayasuriya (2006). Trajectory tracking and balance stabilization control of autonomous motorcycles. In *Proceedings of 2006 IEEE International Conference on Robotics and Automation*, Orlando, FL, pp 2583-2589.
- C20. J. Yi, W. Sang and E. Zhao (2005). A run-to-run film thickness control for chemical-mechanical planarization (CMP) processes. In *Proceedings of the American Control Conference*, Portland, OR, pp 4231-4236.
- C19. J. Yi, S. Ding and D. Song (2005). Steady-state throughput and scheduling analysis of multi-cluster tools for semiconductor manufacturing: A decomposition approach. In *Proceedings of 2005 IEEE International Conference on Robotics and Automation*, Barcelona, Spain, pp 293-299. (**Kayamori Best Paper Award.**)
- C18. J. Yi and C. Xu, (2004). Broad-band optical end-point detection for linear chemical-mechanical planarization (CMP) processes using an image matching technique. In *Proceedings of the 2004 ASME International Mechanical Engineering Congress & Exposition*, Vol. II, Anaheim, CA.
- C17. S. Ding and J. Yi, (2004). An event-graph based simulation and analysis of multi-cluster tools. In *Proceedings of the 2004 Winter Simulation Conference*, Washington DC, pp 1915-1924.
- C16. J. Yi, (2004). On the wafer/pad friction for linear chemical-mechanical planarization: Modeling, analysis and experiments. In *Proceedings of the American Control Conference*, Boston, MA, pp 4873-4878.
- C15. J. Yi, Y. Sheng and S. Xu, (2003). Neural network based uniformity profile control of linear chemical-

mechanical planarization (CMP). In *Proceedings of the 42nd IEEE Conference on Decision and Control*, Maui, HI, pp 5955-5960.

- C14. J. Yi and R. Horowitz, (2002). Macroscopic traffic flow stability for adaptive cruise controlled (ACC) vehicles. In *Proceedings of the 41st IEEE Conference on Decision and Control*, Las Vegas, NV, pp 893-899.
- C13. J. Yi, H. Lin, L. Alvarez and R. Horowitz, (2002). Stability of macroscopic traffic flow modeling through wavefront expansion. In *Proceedings of the American Control Conference*, Anchorage, AK, pp 1484-1490.
- C12. L. Alvarez, J. Yi, and R. Horowitz, (2002). Adaptive emergency braking control with observer-based dynamic tire/road friction model and underestimation of friction coefficient. In *Proceedings of the 15th IFAC World Congress on Automatic Control*, Barcelona, Spain.
- C11. J. Yi, L. Alvarez, X. Claeys, R. Horowitz and C. Canudas de Wit, (2001). Emergency braking control with an observer-based dynamic tire/road friction model and wheel angular velocity information. In *Proceedings of the American Control Conference*, Arlington, VA, pp 19-24.
- C10. X. Claeys, J. Yi, L. Alvarez, R. Horowitz, C. Canudas de Wit, and L. Richard (2001). Tire friction modeling under wet road conditions. In *Proceedings of the American Control Conference*, Arlington, VA, pp 1794-1799.
- C9. L. Alvarez, J. Yi and R. Horowitz, (2001). Observer-based emergency braking control in automated highway systems. In *Proceedings of the American Control Conference*, Arlington, VA, pp 2093-2098.
- C8. G. Gomes, L. Muñoz, J. Yi, C. Toy, S. Cinnamon, R. Horowitz and L. Alvarez, (2001). Meso-microscale traffic simulation of an AHS control architecture. In *Proceedings of the American Control Conference*, Arlington, VA, pp 1806-1811.
- C7. X. Claeys, J. Yi, L. Alvarez, R. Horowitz and C. Canudas de Wit, (2001). A simple 3D parametric tire/road friction model for vehicle simulation and control. In *Proceedings of the 4th IEEE Conference on Intelligent Transportation Systems*, Oakland, CA, pp 485-490.
- C6. X. Claeys, J. Yi, L. Alvarez, R. Horowitz, and C. Canudas de Wit, (2001). A new 3D dynamic tire/road friction model for vehicle control and simulation. In *Proceedings of the 2001 ASME International Mechanical Engineering Congress & Exposition*, Vol. II, New York, NY.
- C5. L. Muñoz, G. Gomes, J. Yi, C. Toy, R. Horowitz and L. Alvarez, (2001). Integrated meso-microscopic traffic simulation of automated highway systems. In *Proceedings of the 4th IEEE Conference on Intelligent Transportation Systems*, Oakland, CA, pp 84-89.
- C4. J. Yi, L. Alvarez, R. Horowitz and C. Canudas de Wit, (2000). Adaptive emergency brake control using a dynamic friction model. In *Proceedings of the 39th IEEE Conference on Decision and Control*, Sydney, Australia, pp 456-461.
- C3. L. Alvarez, J. Yi and R. Horowitz, (2000). Emergency braking control in automated highway systems with underestimation of friction coefficient. In *Proceedings of the American Control Conference*, Chicago, IL, pp 574-579.
- C2. J. Yi, L. Alvarez, A. Howell, R. Horowitz, K. Hedrick, (2000). A fault management system for longitudinal vehicle control in AHS. In *Proceedings of the American Control Conference*, Chicago, IL, pp 1514-1518.
- C1. L. Alvarez and J. Yi, (1999). Adaptive emergency braking control in automated highway systems. In *Proceedings of the 38th IEEE Conference on Decision and Control*, Phoenix, AZ, pp 3740-3745.

● **Refereed conference papers that are under review**

- CS5. M. Trkov, S. Wu, K. Chen and J. Yi (2016). Design and characterization of a robotic knee assistive device (ROKAD) for slip-induced fall prevention during walking. Submitted to *2017 IFAC World Congress*.
- CS4. C. Guo and J. Yi (2016). Modeling and experiments of rotary percussive drilling for robotic civil infrastructure rehabilitation. Submitted to *2017 IFAC World Congress*.
- CS3. K. Chen, M. Trkov, and J. Yi (2016). Hybrid zero dynamics of human biped walking with foot slip. Submitted to *2017 American Control Conference*.
- CS2. P. Wang and J. Yi (2016). Trajectory tracking and balance control of an autonomous bikebot. Submitted to *2017 IEEE International Conference on Robotics and Automation*.
- CS1. K. Chen, M. Trkov, J. Yi and T. Liu (2016). Optimization-Based Balance Control of Human Walking with Foot Slip. Submitted to *2017 IEEE International Conference on Robotics and Automation*.

● **Non-refereed journal papers**

- NJ2. J. Yi, J. Ueda, and X. Zhu (2017). Introduction to the Focused Section on Intelligent Robotics for Rehabilitation and Human Assistance. *International Journal of Intelligent Robotics and Applications*, vol. 1, no. 1,

pp 1-4.

NJ1. J. R. Morrison, C.-F. Chien, S. Dauzère-Pérès, M. Dawande, H. Ding, J. S. Pettinato, and J. Yi (2011). Guest Editorial: Special Section on Equipment and Operations Automation in the Semiconductor Industry. *IEEE Trans. on Automation Science and Engineering*, vol. 8, no. 1, pp 1-4.

- **Non-refereed conference papers (extended abstract reviewed)**

NC7. M. Trkov, K. Chen, and J. Yi (2016). Slip detection and fall prevention system for human walking with foot slip. In *Dynamic Walking 2016*, Ann Arbor, MI.

NC6. N. Gucunski, J. Yi, B. Basily, T. Duong, J. Kim, P. Balaguru, H. Parvardeh, A. Maher, and H. Najm (2015). Concrete bridge deck early problem detection and mitigation using robotics. In *Proceedings of the 2015 SPIE Conference on Structural Health Monitoring and Inspection of Advanced Materials, Aerospace, and Civil Infrastructure*, vol. 9437, Paper #94370P, San Diego, CA.

NC5. M. Trkov, F. Liu, J. Yi, and H. Baruh (2011). Study of concrete drilling for automated non-destructive evaluation and rehabilitation system for bridge decks. In *Proceedings of the 2011 SPIE Conference on Non-destructive Characterization for Composite Materials, Aerospace Engineering, Civil Infrastructure, and Homeland Security V*, Paper #798307, San Diego, CA.

NC4. K. S. Moon, S. Kassegne, K. Morsi, J. Yi, and A. Beyene (2008). Low-cost polymeric and carbon-based photovoltaic cells for clean energy applications. In *Proceedings of the 5th International Congress of Nano-Bio Clean Tech*, San Francisco, CA.

NC3. R. Cooper, H. Lee, J. Butler, B. Mika, D. Clayton, K. Wang, J. Yi, and H. Liang (2008). Stress-resolved and cockroach-friendly piezoelectric sensors. In *Proceedings of 2008 SPIE Conference on Sensors, and Command, Control, Communications, and Intelligence (C3I) Technologies for Homeland Security and Homeland Defense VII*, Orlando, FL, vol. 6943, Paper 6943-9.

NC2. J. Yi and H.H. Liang (2007). Development of a PVDF-based rubber-tread deformation sensing system for understanding wheel/ground interactions. In *Proceedings of 2007 World Forum on Smart Materials and Smart Structures Technology*, Nanjing, China.

NC1. K. Moon, H.H. Liang, and J. Yi (2007). Tire tread deformation sensor and energy harvester development for "Smart tire" applications. In *Proceedings of 2007 SPIE Conference on Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems*, San Diego, CA, vol. 6529, Paper 65290K.

- **Technical reports**

R4. J. Yi, S. Suryanarayanan, A. Howell, R. Horowitz, M. Tomizuka, and K. Hedrick, (2002). Development and implementation of a vehicle-centered fault diagnostic and management system for the extended PATH-AHS architecture: Part I. California PATH Research Report UCB-ITS-RR-2002-34 , Institute of Transportation Studies, University of California at Berkeley.

R3. J. Yi, S. Suryanarayanan, A. Howell, R. Horowitz, M. Tomizuka, and K. Hedrick, (2002). Development and implementation of a vehicle-centered fault diagnostic and management system for the extended PATH-AHS architecture: Part II. California PATH Research Report UCB-ITS-RR-2002-35 , Institute of Transportation Studies, University of California at Berkeley.

R2. J. Yi, A. Howell, R. Horowitz, K. Hedrick and L. Alvarez, (2001). Fault detection and handling for longitudinal control of automated highway systems (AHS). California PATH Research Report UCB-ITS-PRR-2001-21, Institute of Transportation Studies, University of California at Berkeley.

R1. J. Yi, L. Alvarez and R. Horowitz, (1998). An interface between fault handling and detection modules. California PATH Research Report UCB-ITS-PRR-1998-16, Institute of Transportation Studies, University of California at Berkeley.

- **Theses**

T3. J. Yi, (2002). A fault tolerant longitudinal control and tire/road friction estimation system for automated highway systems (AHS). Ph.D. dissertation, Department of Mechanical Engineering, University of California at Berkeley.

T2. J. Yi, (2001). Macroscopic traffic flow stability through wavefront expansion. M.A. thesis, Department of Mathematics, University of California at Berkeley.

T1. J. Yi, (1996). Design improvements on condition monitoring and fault diagnostic systems for large-scale turbo generators and an automobile wheel rim testing system. M.Eng. thesis, Department of Precision Instruments and Mechanology, Tsinghua University, China.

- **Video**

- V1. A. Levandowski, A. Schultz, C. Smart, A. Krasnov, H. Chau, B. Majusiak, F. Wang, D. Song, **J. Yi**, H. Lee, and A. Parish, (2006). Ghost rider: Autonomous Motorcycle. In *Proceedings of 2006 IEEE International Conference on Robotics and Automation*, Orlando, FL.

PATENTS

- P5. T. Taylor, **J. Yi** and P. Norton, "System and method for *in-situ* characterization and maintenance of polishing pad smoothness in chemical-mechanical polishing", US Patent 7, 153, 182, December 26, 2006.
- P4. **J. Yi** and C. Xu, "Neural network control of chemical mechanical planarization", US Patent 7, 001, 243, February 21, 2006.
- P3. **J. Yi** and C. Xu, "Methods for monitoring and controlling chemical mechanical planarization", US Patent 6, 931, 330, August 16, 2005.
- P2. **J. Yi** and C. Xu, "End-point detection with image matching in semiconductor manufacturing", US Patent 6, 930, 782, August 16, 2005.
- P1. G. Lee, C. Xu, E. Zhao and **J. Yi**, "Application of heated slurry for oxide CMP", US Patent Application 20040266192, December 30, 2004.

RESEARCH GRANTS

- **External**

- G18. "Advanced materials - review and performance." *NJ DOT Long Term Bridge Performance (LTBP) Program*, 1/1/2016-12/31/2016. PI: N. Guncunski, co-PIs: **J. Yi** and P. N. Balaguru. Amount: \$200,000. Prorated amount at Rutgers: \$30,000
- G17. "EAGER: Development of model-based active chair for proactive injury prevention." *National Science Foundation*, IIS-1555408, 10/1/2015-9/30/2018, PI: K. Li, co-PIs: **J. Yi**, M. Vives, V. Pavlovic, and D. Metaxas. Amount: \$300,000.
- G16. "Control methods for unstable physical human-machine interactions." Exploratory funding, *The State Key Lab of Fluid Power Transmission and Control*, GZKF-201404, Zhejiang University, 12/1/2014-12/1/2016, PI: **J. Yi**. Amount: RMB100,000.
- G15. "Modeling and cooperative control of human motor skills with unstable physical human-robot interactions." *National Natural Science Foundation of China*, NSFC-61428304, 1/1/2015-12/31/2016, PI: **J. Yi**, co-PI: T. Liu (Zhejiang University). Amount: RMB200,000.
- G14. "NRI: Collaborative Research: Minimally invasive robotic non-destructive evaluation and rehabilitation for bridge decks (Bridge-MINDER)." *National Science Foundation*, IIS-1426828, 8/1/2014-7/31/2017, PIs: **J. Yi** and D. Song (Texas A&M University), co-PIs: N. Guncunski and H. La. Amount: \$878,567. Prorated amount at Rutgers: \$578,567. (US-European Collaboration Supplemental Awards: NSF/IIS-1523341: \$49,932.)
- G13. "Cooperative adaptation and shaping of human motor control through unstable physical human-robot interactions." *National Science Foundation*, CMMI-1334389, 9/1/2013-8/31/2016, PI: **J. Yi**, co-PI: K. Li. Amount: \$325,000. Prorated amount: \$295,439. (REU Supplemental Awards: NSF/CMMI-1417336: \$5,000.)
- G12. "BIOME - A bio-robotic infrastructure for oceanic microbial ecology." *National Science Foundation*, OCE-1131022, 10/1/2011-9/30/2015, PI: L. Kerkhof, co-PIs: **J. Yi**, O. Schofield, and S. Glenn. Amount: \$826,509. Prorated amount: \$274,954.
- G11. "Automated condition assessment of concrete bridge decks using multiple NDE technologies." *Federal Highway Administration (FHWA) Long Term Bridge Performance (LTBP) Program*, 6/1/2011-5/31/2013. Total project amount: \$2.2 millions. Dr. Yi is the robotics task leader for the project. Prorated amount: around \$750,000.
- G10. "CAREER: Human-inspired safety-preserved vehicle agile maneuvers." *National Science Foundation*, CMMI-0954966, 4/1/2010-3/31/2016, PI: **J. Yi**. Amount: \$423,000. Prorated amount: \$423,000. (REU Supplemental Awards: NSF/CMMI-1228665: \$6,000; NSF/CMMI-1127240: \$6,000; NSF/CMMI-1332448: \$6,000; NSF/CMMI-1417335: \$5,000.)

- G9. "Automated nondestructive evaluation and rehabilitation system (ANDERS) for bridge decks." *NIST Technology Innovation Program (TIP) Award - 70NANB10H014*, 2/1/2010-1/31/2014, PI: N. Gucunski, co-PIs: P. N. Balaguru, J. Yi, F. Moon, and industrial partners Mala GeoScience USA Inc., PD-LD Inc., and Pennoni Associates Inc. Total project amount: \$17.9 millions. Prorated amount: \$912,156.
- G8. "Vision-based wheel slip estimation of robotic vehicles in global positioning system (GPS)-denied environments". *NASA New Jersey Space Grant Consortium*, 7/1/2009-6/30/2011, PI: J. Yi. Amount: \$25,000.
- G7. "Novel current-activated tip-based sintering (CATS)". *National Science Foundation, CMMI-0826532*, 9/1/2008-8/31/2011, PI: K. Morsi, co-PIs: J. Yi (former), K. Moon, and S. Kassegne. Amount: \$307,161.
- G6. "GOALI: Safety-preserved estimation and control of tire/road interaction". *National Science Foundation, CMMI-0856095*, 7/31/2008-8/1/2012, PI: J. Yi, co-PI: H.E. Tseng. Amount: \$269,999. Prorated amount: \$269,999. (REU Supplemental Awards: *NSF/CMMI-1228664*: \$6,000; *NSF/CMMI-1127234*: \$6,000; *NSF/CMMI-1025409*: \$6,000; *NSF/CMMI-0913254*: \$6,000.)
- G5. "A batteryless intelligent tire system (BITS) for vehicle safety enhancement", Texas Transportation Institute, 9/1/2006-8/31/2007, PI: J. Yi, co-PIs: H. Liang and R. Langari. Amount: \$25,000. Prorated amount: \$25,000.
- **Internal**
 - G4. "Development of autonomous high-performance agile aerial vehicle maneuvers for bridge-deck inspection", Rutgers University Strategic Funds, 3/1/2016-12/31/2016, PI: J. Yi. Amount: \$10,000. Prorated amount: \$10,000.
 - G3. "Micro-UAV swarm for real time 3D monitoring and surveillance", Faculty Research Grant, Rutgers University, 1/1/2012-12/31/2012, PI: A. Elgammal, co-PI: J. Yi. Amount: \$48,000. Prorated amount: \$24,000.
 - G2. "Safety-preserved estimation and control of tire/road interaction (SPECTRA)", University Grants Program Award, San Diego State University, 1/1/2008-6/30/2009, PI: J. Yi. Amount: \$5,850.
 - G1. Faculty equipment fund, Academic Affairs, San Diego State University, 9/1/2006-5/31/2008, PI: J. Yi. Amount: \$60,000.

PROFESSIONAL ACTIVITIES

- Senior Member of the Institute of Electrical and Electronic Engineers (IEEE), 2007–present
- Member of American Society of Mechanical Engineers (ASME), 2002–present
- ASME Dynamic Systems and Control Division (DSCD) Secretary (2016–2020)
- ASME Dynamic Systems and Control Division (DSCD) Mechatronics Technical Committee, Primary member (2005–Present); Secretary (2012); Conference chair (2013); Vice-Chair (2014); Chair (2015); Award Chair (2016)
- Associate Editor
 - *IFAC Journal Mechatronics* (August 2016 –)
 - *IEEE/ASME Trans. on Mechatronics* (July 2016 –)
 - *International Journal of Intelligent Robotics and Applications* (April 2016 –)
 - *ASME Journal of Dynamic Systems, Measurement and Control* (June 2014 –)
 - *IFAC Journal Control Engineering Practice* (November 2013 –)
 - *IEEE Trans. on Automation Science and Engineering* (Jan. 2012 – Dec. 2015, Jan. 2017 –)
 - *International Journal of Intelligent Robotics and Applications*, Focused Section on Intelligent Robotics for Rehabilitation and Human Assistance (2016) as a Lead Guest Editor
 - *IEEE Trans. on Automation Science and Engineering*, Special Issue on Equipment and Operations Automation in the Semiconductor Industry (2009) as a Guest Editor.
 - *ASME Dynamic Systems and Control Division Conference Editorial Board* (2008-2010,2014)
 - *IEEE International Conference on Robotics and Automation, Conference Editorial Board* (2008-2016)
 - *IEEE International Conference on Automation Science and Engineering, Conference Editorial Board* (2007-2016)
 - *IEEE/RSJ Int. Conf. on Intelligent Robots and Systems, Conference Editorial Board* (2008-2011,2014-2016)

- *IEEE International Conference on Intelligent Transportation Systems* (2010,2011,2014-2016)
- Organizing/operating committee member
 - Finance Chair of the *2018 American Control Conference*
 - Program Chair of the *2016 IEEE International Conference on Advanced Intelligent Mechatronics*
 - Member of the best paper award committee, *2016 IEEE Int. Conf. on Automation Science and Engineering*
 - Member of the best paper award committee, *2016 IEEE Int. Conf. on Advanced Intelligent Mechatronics*
 - Chair of Publications for the *2014 ASME Dynamic Systems and Control Conference*
 - Chair of Workshops and Special Lectures for the *2013 ASME Dynamic Systems and Control Conference*
 - Vice-Chair, Invited/Organized Sessions for the *2012 Motion and Vibration Control Conference*
 - Member, *2010 American Control Conference Best Student Paper Award committee*
 - Co-Chair of *Optomechatronic Systems Control Conference of the 2008 SPIE International Symposium on Optomechatronic Technologies*
- Program committee member
 - *American Control Conference* (2010,2014,2017)
 - *ASME Dynamic Systems and Control Conference* (2010,2012)
 - *IEEE/ASME International Conference on Advanced Intelligent Mechatronics* (2010-2012,2014)
 - *IEEE International Conference on Advanced Robotics* (2011)
 - *IEEE International Conference on Automation and Logistics* (2007-2009)
 - *IEEE International Conference on Automation Science and Engineering* (2007-2010,2013,2014)
 - *IEEE International Conference on Complex Systems Engineering* (2015)
 - *IEEE/RSJ International Conference on Intelligent Robots and Systems* (2008-2010)
 - *IEEE International Conference on Intelligent Transportation Systems* (2010,2011,2013,2014)
 - *IEEE International Conference on Mechatronics and Automation* (2005-2007,2009)
 - *International Symposium on Flexible Automation* (2016)
 - *IFAC International Conference on Intelligent Control and Automation Science* (2013)
 - *Motion and Vibration Control Conference* (2012)
 - *Robotics: Science and Systems* (2015)
- Chair/co-Chair/Organizer of sessions in conferences
 - “Automation at Micro-Nano Scales - II” (Chair) in *2016 IEEE International Conference on Automation Science and Engineering*
 - “Vehicle Dynamics and Control” (co-Chair) in *2016 IEEE/ASME International Conference on Advanced Intelligent Mechatronics*
 - “Multiagent Network Systems 2” (co-Chair) in *2015 ASME Dynamic Systems and Control Conference*
 - “Robotics for Rehabilitation and Assistance” (co-Chair) in *2015 IEEE/ASME International Conference on Advanced Intelligent Mechatronics*
 - “Bipedal Robotic Gaits” (co-Chair) in *2015 IEEE International Conference on Robotics and Automation*
 - “Control Applications II” (Chair) in *2015 American Control Conference*
 - “Physical Human-Robot Interactions” (Chair) in *2014 ASME Dynamic Systems and Control Conference*
 - “Civil Infrastructure and Construction Automation” (Chair/co-chair, Co-organizer) and “Micro/Nano Manufacturing and Automation” (Chair/co-chair) in *2013 IEEE International Conference on Automation Science and Engineering*
 - “Human-Machine Interfaces II” (Chair/co-chair) in *2013 IEEE/ASME International Conference on Advanced Intelligent Mechatronics*
 - “Control of Vehicle Dynamics II” (Chair/co-chair) in *2013 American Control Conference*
 - “Tire and Suspension Systems Model” (Chair/co-chair) in *2012 ASME Dynamic Systems and Control Conference/11th Motion and Vibration Control Conference*
 - “Human-in-the-loop Control” (Chair/co-chair) in *2012 American Control Conference*

- “HCCI Engines Modeling and Control” and “Vehicle Dynamics and Control 1” (Chair/co-chair) in 2011 *ASME Dynamic Systems and Control Conference*
 - “Modeling and Diagnostics in Diesel Engines”, “HCCI Engines Modeling and Control”, “Alternative Propulsion Systems Modeling and Control 1”, “Powertrain Systems Modeling and Control”, “Vehicle Dynamics and Control 1”, “Engine Modeling and System Identification”, and “Modeling and Estimation for Automotive & Energy Systems” (co-organizer) in 2011 *ASME Dynamic Systems and Control Conference*
 - “Advanced Vehicle Dynamics and Safety Control” and “Bio-Systems and Health Care 3” in 2010 *ASME Dynamic Systems and Control Conference*
 - “Advanced Vehicle Dynamics and Safety Control”, “Advanced Automotive Powertrain Control”, “Advanced Engine Dynamics and Control”, and “Mobile Robot and Locomotion Control” (co-organizer) in 2010 *ASME Dynamic Systems and Control Conference*
 - “Control of Robotic Systems” in 2010 *IEEE/ASME International Conference on Advanced Intelligent Mechatronics*
 - “Integrated Vehicle Dynamics and Control II” in 2009 *IEEE International Conference on Decision and Control*
 - “Vehicle Dynamics” in 2009 *ASME Dynamic Systems and Control Conference*
 - “Motion Control - I” in 2009 *IEEE International Conference on Robotics and Automation*
 - “Vehicle Dynamics” in 2008 *ASME Dynamic Systems and Control Conference*
 - “Information-Based and Reconfigurable Manufacturing” in 2008 *IEEE International Conference on Automation Science and Engineering*
 - “Micro/Nano Robots II” in 2007 *IEEE/RSJ International Conference on Intelligent Robots and Systems*
 - “Service/Home Automation 2” and “Sensors, Instrumentation, and Measurement 2” in 2007 *IEEE International Conference on Automation Science and Engineering*
 - “Innovative Sensing Systems” in 2007 *World Forum on Smart Materials and Smart Structures Technology*
 - “Mechanical Vibration Control II” and “System Modeling” in 2007 *ASME International Mechanical Engineering Congress & Exposition*
 - “Semiconductor Manufacturing” in 2006 *IEEE Conference on Automation Science and Engineering*
 - “Cooperative Control of Multi-Agent Systems” in 2006 *American Control Conference*
- Reviewer for

Journals: *Advances in Mechanical Engineering* (2013), *ASCE Journal of Aerospace Engineering* (2010), *Asian Journal of Control* (2007,2013,2014,2016), *ASME Journal of Applied Mechanics Review* (2010), *ASME Journal of Dynamic Systems, Measurement, and Control* (2006-2016), *ASME Journal of Manufacturing Science and Engineering* (2015), *Automatica* (2003), *Automation in Construction* (2012), *Autonomous Robots* (2009,2015), *Bioinspiration & Biomimetics* (2013), *Control Engineering Practice* (2005-2016), *Entropy* (2013), *European Physical Journal B* (2009), *IEEE Access* (2016), *IEEE Journal of Biomedical and Health Informatics* (2014), *IEEE Robotics and Automation Letters* (2015), *IEEE Robotics and Automation Magazine* (2006,2014), *IEEE Sensors Journal* (2008,2010-2012,2014), *IEEE Trans. on Automatic Control* (2008,2009,2013,2015,2016), *IEEE Trans. on Automation Science and Engineering* (2006-2014), *IEEE Control Systems Magazine* (2007), *IEEE Trans. on Control Systems Technology* (2001-2003,2010-2014), *IEEE Trans. on Fuzzy Systems* (2011), *IEEE Trans. on Human-Machine Systems* (2014,2015), *IEEE Trans. on Industrial Electronics* (2002,2009,2010,2012,2013,2015), *IEEE Trans. on Industrial Informatics* (2012), *IEEE Trans. on Instrumentation and Measurement* (2009), *IEEE Trans. on Intelligent Transportation Systems* (2007,2008,2010-2013,2015), *IEEE/ASME Trans. on Mechatronics* (2000,2006-2016), *IEEE Trans. on Neural Systems and Rehabilitation Engineering* (2016), *IEEE Trans. on Robotics* (2008-2011,2014,2015), *IEEE Trans. on Semiconductor Manufacturing* (2004-2013), *IEEE Trans. on Vehicular Technology* (2009-2013,2016), *Instrumentation, Systems and Automation (ISA) Trans.* (2007), *Journal of Intelligent Service Robotics* (2009), *International Journal of Advanced Robotic Systems* (2015), *International Journal of Aerospace Engineering* (2014), *International Journal of Control* (2005), *International Journal of Mechatronics and Manufacturing Systems* (2009,2011), *International Journal of Modeling Identification and Control* (2007), *International Journal of Precision Engineering and Manufacturing* (2014,2015), *International Journal of Production Research* (2014), *International Journal of Robotics Research* (2011,2012), *International Journal of Vehicle Autonomous Systems* (2009,2010), *International Journal of Vehicle Design* (2007,2011,2015), *International Journal of Vehicular Technology* (2010), *Journal of Applied Mathematics* (2014), *Journal of Bionic Engineering* (2012), *Journal of Engineering* (2014), *Journal of Mechanical*

Science and Technology (2014), *Journal Mechatronics* (2009,2010), *Journal of Zhejiang University - Computers & Electronics* (2014), *Mathematical Problem in Engineering* (2013,2015,2016), *Measurement Science and Technology* (2014), *Micromachines* (2014), *Multibody System Dynamics* (2013), *Proc. the Inst. Mechanical Engineers, Part D, Journal of Automobile Engineering* (2009-2011), *Proc. the Inst. Mechanical Engineers, Part C, Journal of Mechanical Engineering Science* (2010,2011), *Proc. the Inst. Mechanical Engineers, Part I, Journal of Systems and Control Engineering* (2012-2014), *Proc. of the Royal Society A* (2012), *Journal of Optomechatronics* (2007), *Review of Scientific Instruments* (2014), *Journal of Robotics and Computer Integrated Manufacturing* (2010), *Journal of Vibration and Control* (2010), *OR Spectrum* (2005), *PLOS One* (2016), *Robotica* (2013,2014), *Robotics and Autonomous Systems* (2011,2012,2016), *Sensors* (2009,2012,2013,2015), *Shock and Vibration* (2013), *Transportation Research, Part B* (2006,2007,2009), *Vehicle Systems Dynamics* (2007,2008,2014).

Conferences: *American Control Conference (ACC)* (2000-2016), *ASME Dynamic Systems and Control Conference (DSCC)* (2009-2015), *ASME International Design Engineering Technical Conferences (IDETC)* (2011), *ASME International Mechanical Engineering Congress & Exposition (IMECE)* (2002,2004,2006,2007,2009,2011), *IEEE Intelligent Vehicles Symposium* (2015), *IEEE/ASME International Conference Advanced Intelligent Mechatronics (AIM)* (2010-2016), *IEEE International Conference on Automation Science and Engineering (CASE)* (2007-2016), *IEEE International Conference Control Applications (CCA)* (1999,2005), *IEEE International Conference on Complex Systems Engineering* (2015), *IEEE International Conference on Decision and Control (CDC)* (2002-2015), *IEEE International Symposium on Industrial Electronics (ISIE)* (2007), *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)* (2005-2015), *IEEE International Conference on Intelligent Transportation Systems (ITSC)* (2001,2010,2011,2016), *IEEE International Conference on Mechatronics and Automation (ICMA)* (2005-2007), *IEEE International Conference on Robotics and Automation (ICRA)* (2005-2016), *IEEE International Conference on Robotics and Biomimetics (ROBIO)* (2008), *IEEE Multi-Conference on Systems and Control (MSC)* (2007,2011-2013), *IFAC Symposium on Mechatronic Systems* (2013), *IFAC Symposium on Information Control Problems in Manufacturing (INCOM)* (2006), *IFAC World Congress* (2008,2011,2014), *International Workshop on the Algorithmic Foundations of Robotics (WAFR)* (2006,2010), *Robotics: Science and Systems (RSS)* (2006,2007,2015), *SAE World Congress* (2009).

Books/Book Chapters: *Elsevier* (2009), *Pearson Education* (2010), *Springer-Verlag* (2006-2010), *John Wiley & Sons* (2014).

Proposals: *US National Science Foundation (NSF): OSIE* (2010,2011), *CMMI* (2009); *University of Southern California METRANS* (2004); *Research Grant Council (RGC) of Hong Kong* (2013); *Portuguese Foundation for Science and Technology (FCT)* (2012)

- **Panelist for**

Proposals: *US National Science Foundation (NSF): ARI* (2008), *CAREER* (2014), *CISE* (2011,2012,2015), *CMMI* (2008-2010,2012,2014,2015), *ENG* (2009)

Membership: *IEEE Admission & Advancement (A&A) Committee Senior Member Review Panel* (2009)

INVITED SEMINARS/TALKS

- *University of Alberta, Dept. of Electrical and Computer Eng., Edmonton, AB, Canada, July 2016*
- *Chinese Academy of Sciences, Institute of Automation, Beijing, China, June 2016*
- *Northwestern Polytechnical University, School of Aerospace Engineering, Xi'an, China, June 2016*
- *Zhejiang University, School of Mechanical Engineering, Hangzhou, China, April 2016*
- *Jilin University, School of Automotive Engineering, Changchun, China, April 2016*
- *Huazhong University of Science and Technology, Sch. of Mechanical Sci. & Eng., Wuhan, China, April 2016*
- *Beijing University of Post and Telecommunication, School of Automation, Beijing, China, July 2015*
- *Beijing Institute of Technology, Department of Mechanical and Vehicle Engineering, Beijing, China, July 2015*
- *Kyoto University, Department of Mechanical Engineering, Kyoto, Japan, June 2015*
- *Keio University, Department of System Design Engineering, Yokohama, Japan, June 2015*
- *University of Michigan, Control Systems Seminar series, Ann Arbor, Michigan, April 2015*
- *University of Wollongong, Sch. of Mech., Materials and Mechatronic Eng., Wollongong, Australia, March 2015*

- *Australia National University*, College of Engineering and Computer Science, Canberra, Australia, March 2015
- *University of Newcastle*, Sch. of Electrical Eng. and Computer Science, Callaghan, Australia, March 2015
- *University of Technology, Sydney*, Faculty of Engineering and Information Tech., Sydney, Australia, March 2015
- *Villanova University*, Dept. of Mechanical Engineering, Villanova, PA, November 2014
- *Northwestern Polytechnical University*, Dept. of Control and Information, Xi'an, China, August 2014
- *Hangzhou Dianzi University*, School of Automation, Hangzhou, China, August 2014
- *Zhejiang University*, Depts. of Mechanical Engineering and Control Engineering, Hangzhou, China, July 2014
- *Shanghai University*, School of Mechatronic Engineering, Shanghai, China, May 2014
- *University of Technology, Sydney*, Centre for Autonomous Systems, Sydney, Australia, July 2013
- *Chinese Academy of Sciences*, Shenyang Institute of Automation, Shenyang, China, May 2013
- *Suzhou University*, Robotics and Microsystems Center, Suzhou, China, May 2013
- *Huazhong University of Science and Technology*, Sch. of Mechanical Sci. & Eng., Wuhan, China, May 2013
- *Hubei University of Technology*, School of Mechanical Engineering, Wuhan, China, May 2013
- *Shanghai Jiaotong University*, Dept. of Automation, Shanghai, China, July 2012
- *National Taiwan University*, Dept. of Mechanical Engineering, Taipei, Taiwan, July 2012
- *Tsinghua University*, Dept. of Precision Instruments and Mechanology, Beijing, China, June 2012
- *University of Pittsburgh*, Dept. of Mechanical Engineering and Materials Science, Pittsburgh, PA, March 2012
- *Arizona State University*, School of Engineering of Matter, Transport and Energy, Tempe, AZ, February 2012
- *Iowa State University*, Dept. of Mechanical Engineering, Ames, IA, December 2011
- *University of Toronto*, Dept. of Mechanical and Industrial Engineering, Toronto, Canada, November 2011
- *Stevens Institute of Technology*, Dept. of Electrical and Computer Engineering, Hoboken, NJ, November 2011
- *Chinese Academy of Sciences*, Shenzhen Institute of Advanced Technology, Shenzhen, China, August 2011
- *Chinese University of Hong Kong*, Dept. of Mechanical and Automation Eng., Hong Kong, China, July 2011
- *SUNY at Stony Brook*, Dept. of Mechanical Engineering, Stony Brook, NY, February 2011
- *IEEE Circuits and Systems Princeton/Central Jersey Section*, Piscataway, NJ, December 2010
- *University of Kentucky*, Dept. of Electrical and Computer Engineering, Lexington, KY, April 2010
- *New Jersey Institute of Technology*, Dept. of Mechanical and Industrial Engineering, Newark, NJ, March 2010
- *Zhejiang University*, Inst. of Mechatronics and Control Engineering, Hangzhou, China, December 2009
- *Nankai University*, Inst. of Robotics and Automatic Information System, Tianjin, China, December 2009
- *Rutgers University*, Dept. of Mechanical and Aerospace Engineering, Piscataway, NJ, May/September, 2008
- *Santa Clara University*, Dept. of Mechanical Engineering, Santa Clara, CA, March 2008
- *San Diego State University*, Computational Science Research Center, San Diego, CA, October 2007
- *University of Arizona*, Dept. of Aerospace and Mechanical Engineering, Tucson, AZ, May, 2007
- *University of Texas at San Antonio*, Dept. of Mechanical Engineering, San Antonio, TX, April, 2007
- *San Diego State University*, Department of Mechanical Engineering, San Diego, CA, April 2006
- *Michigan State University*, Dept. of Mechanical Engineering, East Lansing, MI, March 2006
- *Texas A&M University*, Dept. of Computer Science, College Station, TX, March 2006
- *Texas A&M University*, Dept. of Mechanical Engineering, College Station, TX, February 2005
- *Oregon State University*, Dept. of Mechanical Engineering, Corvallis, OR, May 2004
- *Purdue University at Indianapolis*, Dept. of Mechanical Engineering, Indianapolis, IN, March 2004
- *Washington University in St. Louis*, Dept. of Civil Engineering, St. Louis, MS, April 2003
- *Clemson University*, Dept. of Mechanical Engineering, Clemson, SC, March 2003
- *University of South Carolina*, Dept. of Mechanical Engineering, Columbia, SC, November 2002
- *Lam Research Corporation*, CMP/Cleaning Division, Fremont, CA, May 2003, October 2002

- *University of California at Davis*, Dept. of Aeronautical and Mechanical Engineering, Davis, CA, March 2002
- *Boston University*, Dept. of Mechanical and Aerospace Engineering, Boston, MA, March 2002
- *Delphi Automotive Research Center*, Warren, MI, April 2002
- *California PATH Program*, Richmond, CA, March 2002
- *Southern Illinois University*, Dept. of Mechanical Engineering, Edwardsville, IL, November 2001

STUDENT SUPERVISION AND MENTORING

• Current graduate students

Kuo Chen (Ph.D. student, MAE, Rutgers, 2011-), Merrill Edmonds (Ph.D. student, MAE, Rutgers, 2014-), Siyu Chen (Ph.D. student, MAE, Rutgers, 2014-), Chaoke Guo (Ph.D. student, MAE, Rutgers, 2014-), Fei Liu (Ph.D. student, MAE, Rutgers, 2010-), Marko Mihalec (Ph.D. student, MAE, Rutgers, 2016-), Pengcheng Wang (Ph.D. student, MAE, Rutgers, 2012-), Kaiyan Yu (Ph.D. student, MAE, Rutgers, 2011-), Tarik Yigit (Ph.D. student, MAE, Rutgers, 2013-)

• Graduate students alumni/alumna

- Mitja Trkov, Ph.D., *Modeling, sensing, and control of human bipedal walking with foot slip*, Rutgers University, May 2016. (First job after graduation: Research Associate, Rutgers University)
- Yizhai Zhang, Ph.D., *Modeling and control of single-track vehicles: A human-machine-environment interactions perspective*, Rutgers University, Jan. 2014. (First job after graduation: Associate Professor, Northwestern Polytechnical University, China)
- Jingliang Li, Ph.D. (co-advise), *Research on technology of integrated ABS/ASR/ACC system for motor vehicles system*, Beijing Institute of Technology, China, Oct. 2011. (First job after graduation: CAE engineer, Dongfeng Peugeot Citroen Automobile Company, China)
- Juanjuan Sun, M.Eng., *Vision-based localization for real-time motion control of mobile robots*, Rutgers University, Dec. 2016
- Moiz Ezzy, M.S. (MAE), *Design and testing of equipment for non-destructive rehabilitation of bridge deck delaminations*, Rutgers University, May 2015
- Pratul K. Singh, M.S. (ECE), *Design of robotic bio-sampler and localization improvement for autonomous underwater gliders*, Rutgers University, May 2014
- Joseph O'Connor, M.Eng., *Development of a test setup to study ground-shoe interaction during walking*, Rutgers University, Dec. 2013
- Yang Zhang, M.Eng., *Stability boundary generation of vehicle maneuver*, Rutgers University, Aug. 2013
- Andrew Lansley, M.Eng., *Bridge repair robotic components: Design and prototyping*, Rutgers University, Dec. 2011
- Tim W. Matlack, M.Eng., *Dynamic load analysis on a bicycle pedal*, Rutgers University, April 2011
- Siddhant Shah, M.Eng., *Development of "Smart tire" testbed*, Rutgers University, April 2010

• Post-docs/Research associate

Dr. Damoon Soudbakhsh (*Rutgers*, 2011); Dr. Hung M. La (*Rutgers*, 2011-2012)

• Visiting scholars/students

Prof. H. Xiang (*Tianjin University of Science and Technology, China*, 2016-2017); Prof. Y. Liu (*Tianjin University, China*, 2016-2017); Prof. S. Wu (*China Jiliang University, China*, 2015-2016); Prof. S. Lu (*China Jiliang University, China*, 2015); Prof. Y. Liu (*Harbin Institute of Technology, China*, 2014); Mr. H. Han (*Harbin Institute of Technology, China*, 2013-2015); Mr. B. Cai (*Shanghai Jiaotong University, School of Medicine, China*, 2012-2013); Mr. X. Lu (*Nankai University, China*, 2012-2013); Prof. L. Sun (*Nankai University, China*, 2012-2013); Mr. X. Pei (*Beijing Institute of Technology, China*, 2011-2012); Ms. Jeannete Aguilar (*Universidad Nacional Autónoma de México, Mexico*, 2011-2012); Mr. J. Li (*Beijing Institute of Technology, China*, 2009-2010); Prof. X. Yao (*Xi'an Jiaotong University, China*, 2009-2010)

• Undergraduate research assistant mentoring

J. J. Slade Scholar: I. Abraham (2013-2014), A. Allen (2010-2012), S. Kumar (2008-2010), S. Indyk Jr. (2009-2010)

NSF REU students: I. Abraham (2012), A. Allen (2010-2011), G. Azaceta (2011-2012), S. H. Baijnath (2013-), N. Baruh (2010-2011), N. A. Boyko (2011), A. Carretta (2013-2014), D. Friedeborn (2011), M. Ganesh (2010), C. Garlow (2013), A. Garrison (2008-2009), A. Ho (2013-2014), K. Jian (2012, *Duke University*), S. Kumar (2009), S. Indyk Jr. (2010), E. Lee (2010), D. Makovkin (2010), D. Meck (2010), S. Mingay (2008-2009), P. Musto (2009), V. Skidelsky (2010-2011)

Rutgers Project SUPER: N. Srouji (Spring 2014), A. Baghel (Spring 2013)

- **Senior design faculty advisor**

Rutgers University

- “Surgical grasping tool development” (B. Janota, C. Ciummo, M. Joseph, and J. Munning), 2013/2014
- “Autonomous underwater glider” (I. Abraham, C. Budzan, and G. Blanco), 2013/2014
- “Autonomous crack filling robot” (C. Garlow, S. Sambamoorthi, S. Chang, J. Gliatto and J. Zuber), 2013/2014
- “Robotic hand” (G. Azaceta, D. Chiriboga, J. Dahabsu, G. Diaz Colon, and T. Strombers), 2012/2013
- “Smart chair” (X. Liu, H. Patel, S. Sharma, and I. Turan), 2012/2013
- “Gyrocycle” (E. Engler, A. Metz, and S. Zdziebkowski), 2011/2012
- “DiWheel robot” (C. Bulacan, J. Shively, and P. Vasilnak), 2011/2012
- “Smart bicycle rehabilitation system” (S. Derechailo, D. Makovkin, V. Skidelsky, and D. Szurick), 2010/2011
- “Human body weight support system” (J. Hanhart, A. Mikita, C. Qiu, and Y. Zheng), 2010/2011
- “Turnable motorcycle headlight” (A. Gromyko, P. Mathews, H. Patel, and P. Scarcella), 2010/2011
- “Balance master 2.0” (S. Kumar, C. Dyson, S. Desai, K. Arora, and D. Chin), 2009/2010
- “Autonomous motorcycle” (A. Garrison, C. Kennedy, J. Eng, and P. Arvey), 2008/2009
- “Smart tire sensor test bed” (A. Kropilak, E. G. Evdokimoff, J. Burley, P. Musto, and S. Horvath), 2008/2009

San Diego State University

- “Tire sensor test bed” (S. Kirby, R. Sampson, and E. Corwin), 2007/2008

- **Dissertation/Thesis/Qualifying exam committee**

Ph.D. students: D. Grek (*CEE, Rutgers, 2014*), B. Kim (*ISE, Rutgers, 2014*), J. McGarvey (*ECE, Rutgers, 2012*), S. Sehajpal (*ECE, Rutgers, 2012*), Y. Huang (*ECE, Rutgers, 2012*), Y. Yang (*ECE, Rutgers, 2012*), H. Wang (*MAE, Rutgers, 2011*), M. Klein (*CEE, Rutgers, 2011*), N. Bansal (*ECE, Rutgers, 2011*), M. Skataric (*ECE, Rutgers, 2011,2014*), G.-H. Park (*ECE, Rutgers, 2010*)

M.S. students: Y. Zhang (*MAE, Rutgers, 2011*), K. Xu (*MAE, Rutgers, 2010*), A. Mathers (*ME, SDSU, 2007*)

UNIVERSITY / DEPARTMENTAL SERVICES

- *Institute of Marine and Coastal Sciences (IMCS), Rutgers University*
 - Faculty Search Committee (2012)
- *School of Engineering (SOE), Rutgers University*
 - SOE Control/Robotics Seminar series coordinator (2010/2011, 2011/2012)
 - SAE Formula Racing Team faculty advisor (2012-present)
- *Department of Mechanical and Aerospace Engineering, Rutgers University*
 - Faculty search committee (2014-2016)
 - Curriculum & Course Study Committee (2011)
 - Accreditation Committee (2011,2016)
 - Infrastructure Development Committee (2011,)
 - Experimental Lab Committee (2008-2010, 2016)
 - Graduate Study Committee (2008/2009, 2010/2011)
 - Faculty secretary (2008/2009)