WENHUI WANG

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EDUCATION

Ph.D., Mechanical Engineering, 8/2005 — Advisor: A/P: G. S. Hong, Prof. Y. S. Wong
NATIONAL UNIVERSITY OF SINGAPORE (NUS), Singapore
- *Awards*: Research Scholarship

M.S., Systems Engineering, 3/2001 — Advisor: Prof. C. X. Wan
BEIJING INSTITUTE OF TECHNOLOGY (BIT), Beijing, PRC
- *Awards*: Graduate Research Assistantship, Distinguished Graduate Student

B.S., Mechanical & Electronic Engineering, 7/1998
BEIJING INSTITUTE OF TECHNOLOGY (BIT), Beijing, PRC
- *Awards*: People Fellowship, Distinguished Bachelor Thesis

WORKING EXPERIENCE

12/2012-present **Associate Professor,** Precision Instrument, Tsinghua University, Beijing, China

1/2011-8/2012 **Senior Lecturer,** Mechanical Engineering, University of Canterbury, New Zealand

11/2007-12/2010 **Lecturer**, Mechanical Engineering, University of Canterbury, New Zealand
Working area: Mechatronics, Biomanipulation, MEMS, Lab-on-a-chip

10/2005-10/2007 **Post-doctoral Fellow, Team Leader, Advanced Micro and Nanosystems Laboratory (AMNL), University of Toronto (UofT), Canada**
Working Area: Micro/Nano Biomanipulation, Visual Servo Control

11/2004-1/2005 **Research Engineer, Singapore Inst. of Manufacturing Tech., Singapore**
Project: Feature Extraction with DMM-AT Card in PC104

4/2001-3/2002 **PC Hardware Engineer, Lenovo, Beijing, PRC**

PATENTS (9)

[1] **W.H. Wang**, L. Mi, L. Huang, Large-scale networked fluidic device for single cell trapping, Chinese patent application filed.
[2] **W.H. Wang**, Apparatus and control for dielectrophoresis-based 3D rotation of microparticles, Chinese patent application filed.
[3] **W.H. Wang**, L. Huang, Microfluidic device for single cell trap and 3D rotation, Chinese patent application filed.
[4] **W.H. Wang**, D. Jin, High-efficiency hydrodynamic single cell trap device and system, Chinese patent # ZL 201410709749.3.
[5] **W.H. Wang**, L.D. Wang, W.F. Wang, Automatic place and pick system, Chinese patent application filed.
[6] T.B.F. Woodfield, M. Lang, **W.H. Wang**, and X.Q. Chen, System and method for 3D tissue assembly, New Zealand Patent Application, No. NZ587478, filed 2010.
[7] Y. Sun, **W.H. Wang**, System and method for micromanipulating samples, US Patent Application, 20110027885, filed 2008.

[8] Y. Sun, **W.H. Wang**, X.Y. Liu, High-throughput automated cellular injection system and method, US Patent #8,990,023.
[9] **W.H. Wang**, G.S. Hong, Y.S. Wong, A tool condition monitoring system by sensor integration, US Provisional Patent Application, **No. 60/737,921**, filed 2005.

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[1] M. Chandrapal, X.Q. Chen, and **W.H. Wang**, Intelligent Assistive Knee Exoskeleton, in *Mechatronics*, edited by J. Paulo Davim, ISTE-Wiley, 195-238, March 2011.
[2] **W.H. Wang**, R.C. Engelaar, X.Q. Chen, and J.G. Chase, The state-of-art of underwater vehicles-Theories and applications, in *Mobile Robots – State of the Art in Land, Sea, Air, and Collaborative Missions*, edited by X.Q. Chen, Y.Q. Chen, and J.G. Chase, I-Tech Education and Publishing, 129-152, 2009.
[3] M. Nayyerloo, X.Q. Chen, **W.H. Wang**, and J.G. Chase, Cable-climbing robots for power line inspection, in *Mobile Robots – State of the Art in Land, Sea, Air, and Collaborative Missions*, edited by X.Q. Chen, Y.Q. Chen, and J.G. Chase, I-Tech Education and Publishing, 63-84, 2009.
[4] **W.H. Wang**, Y.S. Wong, and G.S. Hong, Sensor fusion for on-line tool condition monitoring in milling, Chapter 26, in *Mechatronic Systems - Devices, Design, Control, Operation, and Monitoring*, edited by C.W. de Silva, CRC Press, Taylor & Francis, 2007.

SPECIAL ISSUE

Guest Editors: Dr. Wenhui Wang and Dr. Shane Xie, Special Issue on Biomedical Robotics, *International Journal of Biomechatronics and Biomedical Robotics (IJBBR)*, vol. 1, no. 1, 2009.

FUNDING

[1] 2016-2018, Single cell micromanipulation: device, system, and application in sequencing, Sponsored by Suzhou-Tsinghua Innovation Taskforce, CNY 1M , PI
[2] 2016-2018, Lung cancer single cell study for precision medicine, Sponsored by National Key R&D Project, CNY 1.8M, PI
[3] 2014-2017, An optofluidic method based on nanopore arrays for label-free characterization of cell adhesion under multiple stimulations, Sponsored by NSFC, CNY 0.81M, PI
[4] 2013-2016, Young 1000-Talent Plan Program Funding, Sponsored by Chinese Government, CNY 2M, PI
[5] 2013-2018, R&D of sampling preparation for body liquid assay, Sponsored by National Instrumentation Project, CNY 2.5387M, AI
[6] 2009-13, Underwater vehicle-prototype and SLAM, sponsored by University of Canterbury, NZ $85,000 (supporting one PhD), PI
[7] 2009-13, Automated microsystems for cell manipulation, sponsored by University of Canterbury and AgResearch, NZ $98,000 (supporting two PhDs), PI
[8] 2009-11, Flea-like jumping robot, sponsored by Brian Mason Trust and University of Canterbury, NZ $23,850, PI
[9] 2008-10, Capital equipment grant, sponsored by University of Canterbury, NZ $81,900, PI
[10] 2008-10, Bernoulli effect based wall climbing robot – prototype and industrial applications, sponsored by PowerHouse Ventures (NZ), NZ $60,000, AI
[11] 2009, Travel grant-in-aid, sponsored by BuildIT, NZ $4500, PI
[12] 2009, Conference (IEEE ICCA2009) organization grant-in-aid, sponsored by the Royal Society of New Zealand, NZ $5625, PI
[13] 2008, Travel grant-in-aid, sponsored by Maurice and Phyllis Paykel Trust, NZ $1500, PI

PUBLICATIONS (90)

JOURNAL PAPERS (38)

[1] Yinuo Cheng, Yue Wang, Zengshuai Ma, **Wenhui Wang*** and Xiongying Ye*, A bubble- and clogging-free microfluidic particle separation platform with multi-filtration, *Lab on a Chip*, 2016, 4517-4526, DOI: 10.1039/C6LC01113F.

[2] Lu Mi, Liang Huang, Junxiang Li, Guoqiang Xu, Qiong Wu and **Wenhui Wang***, A fluidic circuit based, high-efficiency and large-scale single cell trap, *Lab on a Chip*, 2016, 4507-4511, DOI: 10.1039/c6lc01120a. (**Outside Back Cover**)

[3] Liang Huang, Long Tu, Xueyong Zeng, Lu Mi, Xuzhou Li and **Wenhui Wang***, Study of a microfluidic chip integrating single cell trap and 3D stable rotation manipulation, *Micromachines*, 2016, 7(8), 141, DOI: 10.3390/mi7080141.

[4] Yinuo Cheng, Xiongying Ye*, Zengshuai Ma, Shuai Xie, and **Wenhui Wang**, High-throughput and clogging-free microfluidic filtration platform for on-chip cell separation from undiluted whole blood, *Biomicrofluidics*, 2016, 10, 014118, DOI: 10.1063/1.4941985.

[5] Long Tu, Liang Huang, Tianyi Wang and **Wenhui Wang***, Study of flow rate induced measurement error in flow-through nano-hole plasmonic sensor, *Biomicrofluidics*, 2015, 9, 064111, DOI: 10.1063/1.4936863. (**Editor's Pick**)

[6] Wentao Shen, Di Jin, Wei Cai, Zhichang Qiu, Long Tu, **Wenhui Wang***, Modeling and simulation study of micro-nano structures for single cell capture, *Proceedings of the Institution of Mechanical Engineers, Part N: Journal of Nanoengineering and Nanosystems*, 230(2), 91-98, 2016, DOI:10.1177/1740349915579345.

[7] P. Benhal, J. G. Chase*, P. Gaynor, B. Oback, and **W.H. Wang***, Multiple cylindrical electrode system for rotational electric field generation in particle rotation applications, *International Journal of Advanced Robotic Systems*, 2015, 12:84. DOI: 10.5772/60456.

[8] Zhichang Qiu, Long Tu, Liang Huang, Taoyuanmin Zhu, Volker Nock, Enchao Yu, Xiao Liu and **Wenhui Wang***, An integrated platform enabling optogenetic illumination of Caenorhabditis elegans neurons and muscular force measurement in microstructured environments, *Biomicrofluidics*, 9, 014123, 2015. DOI: 10.1063/1.4908595

[9] Di Jin, Bin Deng, Junxiang Li, Wei Cai, Long Tu, Jian Chen, Qiong Wu, **Wenhui Wang***, A microfluidic device enabling high-efficiency single cell trapping, *Biomicrofluidics*, 9, 041101, 2015. DOI: 10.1063/1.4905428

[10] Long Tu, **Wenhui Wang***, Zhichang Qiu, Review of extraordinary optical transmission: Theory and application in biochemical analysis, *Spectroscopy and Spectral Analysis*, 35(3), 751-759, 2015). DOI: 10.3964/j.issn.1000-0593(2015)03-0751-09

[11] P. Benhal, J. G. Chase*, P. Gaynor, B. Oback, and **W.H. Wang***, AC electric field induced dipole-based on-chip 3D cell rotation, *Lab on a Chip*, 14, 2717-2727, 2014, DOI: 10.1039/C4LC00312H.

[12] S. Johari, V. Nock, M.M. Alkaisi, and **W.H. Wang***, On-chip analysis of C. elegans muscular forces and locomotion patterns in microstructured environments, *Lab on a Chip*, 13, 1699-1707, 2013 (**Inside Front Cover**).

[13] M. Chandrapal , X.Q. Chen, **W.H. Wang**, B. Stanke, and N.L. Pape, Preliminary evaluation of intelligent intention estimation algorithms for an actuated lower-limb exoskeleton, *International Journal of Advanced Robotic Systems*, 10, 147(10pp), 2013.

[14] A. Ghanbari, V. Nock, S. Johari, R. Blaikie, X.Q. Chen, and **W.H. Wang***, A micropillar-based on-chip system for continuous force measurement of *C. elegans*, *J. of Micromechanics and Microengineering*, 22, 095009, 2012.

[15] A. Ghanbari, B. Horan, S. Nahavandi, X.Q. Chen, and **W.H. Wang**, Haptic microrobotic cell injection system, *IEEE Systems Journal*, 8, 2, 371-383, 2014. DOI: 10.1109/JSYST.2012.2206440.

[16] M. Chandrapal, X.Q. Chen, **W.H. Wang**, and C. Hann, Nonparametric control algorithms for a pneumatic artificial muscle, *Expert Systems with Applications*, 39(10), 8636-8644, 2012.

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[18] A.S. Banerjee, R. Blaikie, and **W.H. Wang**, Microfabrication process for XYZ stage-needle assembly for cellular delivery and surgery, *Materials Science Forum*, 700, 195-198, 2011. DOI: 10.4028/www.scientific.net/MSF.700.195.

[19] S. Johari, V. Nock, M.M. Alkaisi, and **W.H. Wang**, High-throughput microfluidic sorting of C. elegans for automated force pattern measurement, *Materials Science Forum*, 700, 182-187, 2011. DOI: 10.4028/www.scientific.net/MSF.700.182.

[20] S.R. Buksh, X.Q. Chen, **W.H. Wang**, Study of flea jumping mechanism for biomimetic robot design, *Journal of Biomechanical Science and Engineering*, 5(1), 41-52, 2010.

[21] A. Ghanbari, V. Nock, R. Blaikie, J.G. Chase, X.Q. Chen, C.E. Hann, and **W.H. Wang**, Force pattern characterization of C. elegans in motion, *International Journal of Computer Applications in Technology*, 39(1-2-3), 137-144, 2010.

[22] C.E. Hann, D. Hewett, J.G. Chase, T. Rabczuk, A. Sundarasan, X.Q. Chen, **W.H. Wang**, and G.M. Shaw, Image based measurement of alveoli expansion in an animal model of a diseased lung. *International Journal of Computer Applications in Technology*, 39(1-2-3), 58-65, 2010.

[23] **W.H. Wang**, Y. Sun, S.J. Dixon, M. Alexander, and P.J. Roy, An automated micropositioning system for investigating C. elegans locomotive behaviour, *Journal for the Association for Laboratory Automation*, 14, 269-276, 2009.

[24] **W.H. Wang**, X.Q. Chen, A. Marburg, J.G. Chase, and C.E. Hann, Design of low-cost unmanned underwater vehicle for shallow waters, *International Journal of Advanced Mechatronic Systems*, 1(3), 194-202, 2009.

[25] **W.H. Wang**, D. Hewett, C.E. Hann, J.G. Chase, and X.Q. Chen, Application of machine vision for automated cell injection, *International Journal of Mechatronics and Manufacturing Systems*, 2(1-2), 120-134, 2009.

[26] **W.H. Wang**, X.Y. Liu, and Y. Sun, High-throughput automated injection of individual biological cells, Special Issue on Drug Delivery Automation, *IEEE Trans. Automation Science and Engineering*, 6(2), 209-219, 2009.

[27] **W.H. Wang**, Y. Sun, M. Zhang, R. Anderson, L. Langille, and W. Chan, A system for high-speed microinjection of adherent cells, *Review of Scientific Instruments*, 79(10), pp. 104302, 2008. (**selected for the November 1, 2008 issue of Virtual Journal of Biological Physics Research**)

[28] K.P. Zhu, G.S. Hong, Y.S. Wong, and **W.H. Wang**, Cutting force denoising in micro-milling tool condition monitoring, *Int. J. Prod. Res.*, 46(16), 4391-4408, 2008.

[29] **W.H. Wang**, X.Y. Liu, D. Gelinas, B. Ciruna, and Y. Sun, A fully automated robotic system for microinjection of zebrafish embryos, *PLoS ONE*, 2(9), e862, doi: 10.1371/journal.pone.0000862, 2007.

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[31] X.Y. Liu, Y. Sun, **W.H. Wang**, and B.M. Lansdorp, Vision-based cellular force measurement using an elastic microfabricated device, *J. of Micromechanics and Microengineering*, 17(7), 1281-1288, 2007. (**selected by the journal as a Featured Article and 2007 Highlighted Article**)

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[33] **W.H. Wang**, G.S. Hong, Y.S. Wong, and K.P. Zhu, Sensor fusion for on-line tool condition monitoring in milling, *Int. J. Prod. Res.*, 45(21), 5095-5116, 2007.
[34] **W.H. Wang**, Y.S. Wong, and G.S. Hong, 3-D measurement of crater wear by phase-shifting method, *Wear*, 261(2), 164-171, 2006.
[35] **W. H. Wang**, G. S. Hong, and Y. S. Wong, Flank wear measurement by a threshold independent method with sub-pixel accuracy, *Int. J. Mach. Tools Manufact.*, 46(2), 199-207, 2006.
[36] **W. H. Wang**, Y. S. Wong, and G. S. Hong, Flank wear measurement by successive image analysis, Special Issue in Machine Vision in *Computers in Industry*, 56(8-9), 816-830, 2005.
[37] **W. H. Wang**, Integrated method of recognizing huge target, *Journal of Beijing Institute of Technology (English Edition)*, 10(4), 423-429, 2001.
[38] **W. H. Wang**, A method of fast recognition of huge objects, *ACTA ARMAMENTARII*, 22(3), 423-425, 2001.

CONFERENCE PAPERS (52)

[1] Liang Huang, Peng Zhao, Shengtai Bian, Guanya Shi, Peng Liu, Song Zong, **Wenhui Wang***, A novel bioMEMS device for efficient on-chip single cell loading and 3d rotation, The 30th IEEE Conference on Micro Electro Mechanical Systems (MEMS 2017), Las Vegas, USA, January 22 - 26, 2017.
[2] Lu Mi, Liang Huang, Junxiang Li, Guoqiang Xu, Qiong Wu and **Wenhui Wang***, Fluidic circuit based microfluidic device for deterministic single-cell trapping with high efficiency and adaptivity, The 20th International Conference on Miniaturized Systems for Chemistry and Life Sciences (MicroTAS 2016), Dublin, IRELAND, 9 - 13 October 2016.
[3] Xueyong Zeng, Liang Huang, Han-Sheng Chuang, and **Wenhui Wang***, Immobilization of C. elegans in liquid using 3D-electrode dieletrophoresis, The 20th International Conference on Miniaturized Systems for Chemistry and Life Sciences (MicroTAS 2016), Dublin, IRELAND, 9 - 13 October 2016.
[4] Xuzhou Li, Long Tu, **Wenhui Wang***, Investigation of extraordinary optical transmission properties for double-layered nano-hole perforated gold films, the International Conference on Robotics, Manipulation, and Automation at Small Scales (MARSS) 2016, 18-22 July, Paris, France, IEEEXPLORE ISBN: 978-1-5090-1510-8.
[5] Liang Huang, Long Tu, Xueyong Zeng, Lu Mi, Xuzhou Li, **Wenhui Wang***, Towards on-chip single cell manipulation of trap and rotation, the International Conference on Robotics, Manipulation, and Automation at Small Scales (MARSS) 2016, 18-22 July, Paris, France. IEEEXPLORE ISBN: 978-1-5090-1510-8.
[6] L. Tu, L. Huang, S.H. Jin, X.Z. Li, L. Mi, Q. Wu, and **W.H. Wang***, Label-free monitoring of molecular binding based on extraordinary optical transmission with enhanced accuracy, The 29th IEEE Conference on Micro Electro Mechanical Systems (MEMS 2016), Shanghai, China, January 24-28, 2016.
[7] Z.C. Qiu, L. Tu, X.F. Xue, T.Y.M. Zhu, V. Nock, Y.B. Li, X. Liu, and **W.H. Wang***, Optogenetic manipulation of freely moving C. elegans in an elastomeric environment-mimicking and force-measuring chip, The 18th International Conference on Miniaturized Systems for Chemistry and Life Sciences (MicroTAS 2014), San Antonio, Texas, USA, October 26-30, 2014.
[8] S. Banerjee, **W.H. Wang**, and S. Gutschmidt, Design and analysis of actuated microneedles for robotic manipulation, Proceedings of the ASME 2014 International Mechanical Engineering Congress & Exposition (IMECE2014), Montreal, Quebec, Canada, November 8-13, 2014.

[9] P. Benhal, J.G. Chase, P. Gaynor, B. Oback, and **W.H. Wang**, Dielectrophoresis-based 3D cell rotation through integration of bottom and vertical electrodes, The 17th International Conference on Miniaturized Systems for Chemistry and Life Sciences (MicroTAS 2013), Freiburg, Germany, October 27-31, 2013.

[10] **W.H. Wang**, Y.K. Peng, T.H. Cui, Simulation study of extraordinary optical transmission induced by sub-wavelength nanopore arrays towards label-free biochemical analysis, 2013 International Conference on Manipulation, Manu-facturing and Measurement on the Nanoscale (3M-NANO), Suzhou, China, August 26-30, 2013. (**Winner of the Best Conference Paper Award**)

[11] M. Chandrapal, X.Q. Chen, **W.H. Wang**, Preliminary evaluation of a lower-limb exoskeleton - stair climbing, 2013 IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM 2013), Wollongong, Australia, July 9-12, 2013.

[12] S. Johari, V. Nock, M.M. Alkaisi, and **W.H. Wang*,** Elastomeric pillar arrays for integrated measurement of C. elegans locomotion forces, The 16th International Conference on Miniaturized Systems for Chemistry and Life Sciences (MicroTAS 2012), Ginowan City Okinawa, Japan, October 28-November 1, 2012.

[13] M. Lang, X.Q. Chen, **W.H. Wang**, and T. Woodfield, Injection system for cellular assembly of 3D bio-tissue engineered constructs, The 8th annual IEEE International Conference on Automation Science and Engineering (CASE 2012), Seoul, Korea, August 20-24, 2012.

[14] A. Ghanbari, X. Chen and **W.H. Wang**, Intelligent precision control for haptic microrobotic cell injection system, Australasian Conference on Robotics and Automation (ACRA 2011), Melbourne, Australia, December 7-9, 2011.

[15] A.S. Banerjee, R. Blaikie, X.Y. Liu, and **W.H. Wang**, Design and analysis of electrostatically actuated 3-axes microcantilevers for cellular delivery and surgery, 37th International Conference on Micro and Nano Engineering (MNE2011), Berlin, Germany, September 19-23, 2011.

[16] R. Schattschneider, G. Maurino, and **W.H. Wang**, Towards stereo vision SLAM based pose estimation for ship hull inspection, OCEANS '11 MTS/IEEE KONA, Hilton Waikoloa Village, Kona, Hawai'i, US, September 19-22, 2011.

[17] M. Chandrapal, B. Stanke, X.Q. Chen, and **W.H. Wang**. ANN based isometric torque estimation from multiple knee extensors. 15th International Conference on Mechatronics Technology, Melbourne, Australia, Monash University, November 30-December 2, 2011.

[18] M. Chandrapal, X.Q. Chen and **W.H. Wang**. EMG based isometric torque estimation of knee extension. 26th Japanese Conference on the Advancement of Assistive and Rehabilitation Technology, Osaka, Japan, Rehabilitation Engineering Society of Japan, August 24-26, 2011.

[19] S.S. Shamsudin, X.Q. Chen, **W.H. Wang**, C.E. Hann, and G. Chase, Neural networks based system identification for an unmanned helicopter system, 4th Asia International Symposium on Mechatronics (AISM 2010), Singapore, December 15-18, 2010. (**Winner of the Best Conference Paper Award**)

[20] A. Ghanbari, X.Q. Chen, **W.H. Wang**, B. Horan, H. Abdi, and S. Nahavandi, Haptic microrobotic intracellular injection assistance using virtual fixtures, 11th International Conference on Control Automation Robotics & Vision (ICARCV 2010), Singapore, December 7-10, 2010.

[21] A. Ghanbari, H. Abdi, B. Horan, S. Nahavandi, X. Chen, and **W.H. Wang**, Haptic guidance for microrobotic intracellular injection, IEEE BIOROB (2010), Tokyo, Japan, pp. 162-167. September 26-29, 2010.

[22] X.Q. Chen, J.G. Chase, **W.H. Wang**, P. Gaynor, and A.I. McInnes, Embedding design projects into multidisciplinary engineering education, 2010 International Conference on

Educational and Information Technology (ICEIT 2010), Chongqing, China, September 17-19, 2010.

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[24] A. Ghanbari, V. Nock, R.J. Blaikie, X.Q. Chen, J.G.Chase, and **W.H. Wang**, Automated vision-based force measurement of moving C. elegans, 6th annual IEEE Conference on Automation Science and Engineering (CASE 2010), Toronto, Canada, August 21-24, 2010. (**Finalist of the Best Student Conference Paper Award**)

[25] M. Chandrapal, X.Q. Chen, **W.H. Wang**, Self organizing fuzzy control of pneumatic artificial muscle for active orthotic device, 6th annual IEEE Conference on Automation Science and Engineering (CASE 2010), Toronto, Canada, August 21-24, 2010.

[26] G. Evers, J.H.A.M. Vervoort, R.C. Engelaar, H. Nijmeijer, A.G. de Jager, X.Q. Chen, **W.H. Wang**, Modeling and simulated control of an under actuated autonomous underwater vehicle, The 7th IEEE Conference on Control and Automation (ICCA 2009), Christchurch, New Zealand, December 9-11, 2009.

[27] S. Faramarzi, A. Ghanbari, X.Q. Chen, **W.H. Wang**, A PVDF based 3D force sensor for micro and nano manipulation, The 7th IEEE Conference on Control and Automation (ICCA 2009), Christchurch, New Zealand, December 9-11, 2009.

[28] S.R. Buksh, X.Q. Chen, **W.H. Wang**, Design and modeling of a flea-like jumping robot, The 7th IEEE Conference on Control and Automation (ICCA 2009), Christchurch, New Zealand, December 9-11, 2009.

[29] A. Ghanbari, X.Q. Chen, **W.H. Wang**, Neuro-fuzzy microrobotic system identification for haptic intracellular injection, The 7th IEEE Conference on Control and Automation (ICCA 2009), Christchurch, New Zealand, December 9-11, 2009.

[30] S. Johari, **W.H. Wang**, A. Garrill, Electrical detection of carbon nanopipettes contact with biological cells, New Zealand Postgraduate Conference, Wellington, New Zealand, November 20-21, 2009. (Conference Contribution - Poster presentation)

[31] **W.H. Wang**, R.C. Engelaar, J.H.A.M. Vervoort, P.P.J. van den Bosch, J.G. Chase, and X.Q. Chen, Navigation modeling and simulation for Canterbury hover-capable underwater vehicle, *9th International IFAC Symposium on Robot Control*, Gifu, Japan, September 9-12, 2009.

[32] B. Horan, S. Nahavandi, A. Ghanbari, X.Q. Chen, and **W.H. Wang**, Towards haptic microrobotic intracellular injection, *2009 IEEE/ASME International Conference on Mechatronic and Embedded Systems and Applications*, San Diego, USA, August 30-September 2, 2009.

[33] S.R. Buksh, X.Q. Chen, and **W.H. Wang**, Study of flea jumping mechanism for biomimic robot design, *Fourth Asian Pacific Conference on Biomechanics*, University of Canterbury, Christchurch, NZ, April 14-17, 2009.

[34] A. Ghanbari, **W. H. Wang**, C. Hann, G. Chase, and X. Q. Chen, Cell image recognition and visual servo control for automated cell injection, *4th International Conference on Autonomous Robots and Agents*, Wellington, New Zealand, February 10-12, 2009.

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[40] M. Wagner, X. Q. Chen, M. Nayyerloo, **W. H. Wang**, G. Chase, A novel wall climbing robot based on Bernoulli effect, *2008 IEEE/ASME International Conference on Mechatronic and Embedded Systems and Applications*, Beijing, China, October 12-15, 2008. (**Winner of the Best Student Conference Paper Award**)

[41] **W. H. Wang**, Y. Sun, M. Zhang, R. Anderson, L. Langille, and W. Chan, A microrobotic adherent cell injection system for investigating intracellular behavior of quantum dots, *IEEE Conference on Robotics and Automation (ICRA2008)*, Pasadena, California, May 19-23, 2008.

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[44] **W. H. Wang**, Y. Sun, S. J. Dixon, M. Alexander, and P. J. Roy, A micropositioning system with real-time feature extraction capability for quantifying *C. elegans* locomotive behavior, *IEEE Conference on Automation Science and Engineering (CASE2007)*, Scottsdale, Arizona, September 22-25, 2007.

[45] X. Y. Liu, **W. H. Wang**, B. M. Lansdorp, and Y. Sun, Vision-based cellular force measurement using an elastic microfabricated device, *IEEE International Conference on Intelligent Robotics and Systems (IROS 2006)*, Beijing, October 9-15, 2006.

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[47] **W. H. Wang**, X. Y. Liu, and Y. Sun, Robust contact detection in micromanipulation using computer vision microscopy, *IEEE International Conference on Engineering in Medicine and Biology Society (EMBS2006)*, New York, August 30-September 3, 2006.

[48] Y. Sun, X. Y. Liu, **W. H. Wang**, and B. M. Lansdorp, An elastic MEMS device for cellular force measurement, in *Solid-State Sensor, Actuator and Microsystems Workshop (Hilton Head 2006)*, Hilton Head Island, SC, June 4-8, 2006.

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[50] **W. H. Wang**, G. S. Hong, and Y. S. Wong, Sensor fusion for on-line tool condition monitoring in milling, in *Proc. of International symposium on collaborative research in applied science (ISOCRIAS)*, Vancouver, BC, Canada, October 7-9, 2005.

[51] **W. H. Wang**, Y. S. Wong, and G. S. Hong, Flank wear measurement based on moving images, in *ISIST 2004*, Xi'an, China, August 18-22, 2004.
[52] C. X. Wan, R. S. Yu, and **W. H. Wang**, On Computer Simulation of Image Guidance, in *Proc. of 2000 Annual Conference sponsored by China Aerospace Corp.*, Chengdu, China, 2000.

EDITORIAL MEMBERSHIP

[1] 2015-present, Editorial Advisory Board Member, *Biomicrofluidics*
[2] 2012-present, **Associate Editor**, *International Journal of Advanced Robotic Systems*
[3] 2008-2014, Editorial board, International Journal of Mechatronics and Manufacturing Systems (IJMMS), EIC: Prof. J. Paulo Davim and Prof. Tugrul Özel
[4] 2008-present, Editorial board, International Journal of Biomedical Engineering and Technology (IJBET), EIC: Prof. Nilmini Wickramasinghe
[5] 2008-present, Editorial board, International Journal of Biomechatronics and Biomedical Robotics (IJBBR), EIC: Prof. Shane Xie
[6] 2009-present, Editorial board, Journal of Mechatronics and Intelligent Manufacturing (JMIM), EIC: Prof. J. Paulo Davim

PAPER REVIEW

Lab on a Chip
Scientific Reports
Biomicrofluidics
IEEE Transactions on Robotics
IEEE Transactions on Automation Science and Engineering
IEEE Transactions on Mechatronics
IEEE Transactions on Industrial Electronics
IEEE Sensors Journal
IEEE Robotics and Automation Magazine
International Journal of Nanomedicine
Journal of Micro-Nano Mechatronics
Review of Scientific Instruments
Image and Vision Computing
Machine Vision and Applications Journal
Journal of Materials Processing Technology
Journal of Vibration and Control
International Journal of Optomechatronics
IEEE International Conference on Robotics and Automation
IEEE International Conference on Engineering in Medicine and Biology Society
IEEE International Conference on Intelligent Robots and Systems
IEEE International Conferences on Cybernetics & Intelligent Systems (CIS) and Robotics, Automation & Mechatronics (RAM)
Robotics: Science and Systems

PROFESSIONAL ASSOCIATION

2006-present, SM-IEEE(2012), M (2006)
2010-2012, Committee member, IEEE New Zealand South Section
2009-present, Associate Investigator, MacDiarmid Institute for Advanced Materials and Nanotechnology

CONFERENCE ORGANIZATION (19)

[1] Program committee member, the International Conference on Manipulation, Automation and Robotics at Small Scales, Paris, France, July 18-22, 2016. General Chair: Stéphane Régnier.
[2] Organizing committee member, Advances in Microfluidics & Nanofluidics 2015, Beijing, China, August 18-21, 2015. Chair: Jing Cheng.
[3] Associate Editor, the 2014 IEEE International Conference on Robotics and Automation (ICRA), Hong Kong, China. May 31-June 5, 2014. General Chair: Ning Xi.
[4] Poster judge, for the International Conference on Miniaturized Systems for Chemistry and Life Sciences (MicroTAS 2013, 2014, 2016)
[5] Program Committee member and **Associate Editor**, the 8th IEEE Conference on Automation Science and Engineering, Seoul, Korea. August 20-24, 2012. General Chair: Hyouk Ryeol Choi.
[6] Program Committee member and **Associate Editor**, the 7th IEEE Conference on Automation Science and Engineering, Trieste, Italy. August 24-27, 2011. General Chair: Maria Pia Fanti.
[7] Program Committee member, 2011 and 2012 International Conference on Advanced Mechatronic Systems, Zhengzhou, China, August 11-13, 2011 and Tokyo, Japan, September 18-22, 2012.
[8] Program Committee member, 2010 ACRA Australasian Conference on Robotics and Automation (ACRA 2010), QUT, Brisbane, Australia, December 2010. Program Chair: Ben Upcroft.
[9] Program Committee member, 1st International Conference on Applied Bionics and Biomechanics, ICABB-2010, Venice, Italy, October 14 -16, 2010. General Chair: Rene V. Mayorga
[10] Program Committee member and **Associate Editor**, the 6th IEEE Conference on Automation Science and Engineering, Toronto, Canada. August 21-24, 2010. General Chair: John Wen
[11] Program Committee member, 2010 International Conference on Modelling, Identification and Control (ICMIC 2010), Okayama, Japan. July 17 - 19, 2010. Program Chair: Hong Wang
[12] Program Committee member, the IEEE/ASME International Conference on Mechatronic and Embedded Systems & Applications 2010, Qingdao, China. July 15-17, 2010. Program Chair: Primo Zingaretti.
[13] Program Committee member, 2009 Australasian Conference on Robotics and Automation, Sydney, Australia. December 2-4, 2009. Chair: Steve Scheding
[14] International Program Committee member, 2009 24th International Conference Image and Vision Computing New Zealand, Wellington, New Zealand. Nov. 23-25, 2009. Convenor: Donald Bailey
[15] International Program Committee member, 2009 IEEE International Conference on Networking, Sensing and Control, Okayama, Japan. Mar. 26-29, 2009. Chair: Akira Inoue and Mingcong Deng
[16] Technical Program Committee member, The 4th International Conference on Autonomous Robots and Agents (ICARA 2009), Wellington, NZ. Feb. 10-12, 2009. Chair: G. Sen Gupta and C.H. Messom
[17] Program Co-Chair, the 7th IEEE Conference on Control and Automation (ICCA 2009), Christchurch, New Zealand. 2009. Chair: Lihua Xie, XiaoQi Chen, and Jizhen Liu
[18] International Program Committee member, 2008 IEEE/ASME International Conference on Mechatronic and Embedded Systems and Applications, Beijing, China. Oct. 12-15, 2008. Chair: Ren C. Luo and Harry H. Cheng

INVITED TALKS (22)

[1] Low-cost fabrication of 3-D electrodes for dielectrophoresis applications, July 2016, Optofluidics 2016, Beijing, China.
[2] DEP-based single cell rotation with 3D electrodes, plenary talk, MARSS 2016, Paris, France.
[3] Investigation of extraordinary optical transmission (EOT) properties for double-layered nano-hole perforated gold films, invited talk, MARSS 2016, Paris, France.
[4] Precision microsystems for manipulation and analysis of single cells and model animals, April 2016, 5th Tsinghua-Yonsei Joint Workship, Seoul, Korea.
[5] Precision microsystems for manipulation and analysis of single cells and model animals, Nov. 2015, Lab-on-a-Chip Asia - Microfluidics, Point Of Care Diagnostics & Organ-on-a-Chip, Singapore.
[6] Optical measurement of C. elegans locomotion metrics under microstructures, July 2015, 5th International Conference on Optofluidics, Chinese Taipei.
[7] Optical characterization and manipulation of C. elegans locomotion under microstructures, Nov. 2014, International Conference on Optoelectronics and Microelectronics Technology and Application, Tianjin, China.
[8] 3-D Cell Rotation Based on Dielectrophoresis, Nov. 2014, International Workshop on Innovation and Commercialization of Micro & Nanotechnology, Suzhou, China.
[9] Microsystems for Manipulation and Analysis of Biological Samples, July 2014, 2014 Todai-Tsinghua Joint Workshop for Frontiers in Bioengineering and Biomedical Engineering, Tokyo, Japan.
[10] Precision Microsystems for Single Cell Manipulation and Analysis, June 2014, Tsinghua-ROHM International Forum of Industry-Academia 2014, Tsinghua University, Beijing, China.
[11] Micromanipulation for Biomedical Applications, Sep. 2011, Tsinghua University, Beijing, China.
[12] Micromanipulation for Biomedical Applications, Sep. 2011, Institute of Electronics, Chinese Academy of Science, Beijing, China.
[13] Microsystems for Biomanipulation, Dec. 2010, Shanghai Jiao Tong University, Shanghai, China.
[14] PDMS Microdevices for Micro-Nano Scale Biomechanical Measurements, Nov. 2009, Shenyang Institute of Automation, Shenyang, China.
[15] PDMS Microdevices for Micro-Nano Scale Biomechanical Measurements, Sep. 2009, Nagoya University, Nagoya, Japan.
[16] Biomechatronics for Manipulating Biological Cells and Organisms, Dec. 2008, Ruakura Research Centre, Hamilton, NZ.
[17] Biomechatronics for Manipulating Biological Cells and Organisms, Nov. 2008, University of British Columbia, Canada.
[18] Microrobotic Cell Injection, Apr. 2008, *University of Auckland*, New Zealand.
[19] Microrobotics and Computer Vision for Biomanipulation, Nov. 2007, *Tsinghua University*, PRC.
[20] Microrobotics in Biology: Manipulating Cells and Organisms, Nov. 2007, *Beihang University*, PRC.
[21] Microrobotic Manipulation of Biological Cells and Organisms, May 2007, *University of Canterbury*, New Zealand.
[22] Mechatronics and Robotics in Systems Development, Nov. 2006, *Shenzhen Institute of Advanced Technology*, PRC.

AWARDS

[1] 2016, **Best Conference Paper Award** on 2016 Optofluidics for "Fluidic circuit based microfluidic device for deterministic single-cell trapping with high efficiency and adaptivity"
[2] 2013, **Best Conference Paper Award** on 2013 International Conference on Manipulation, Manu-facturing and Measurement on the Nanoscale (3M-NANO) for "Simulation study of extraordinary optical transmission induced by sub-wavelength nanopore arrays towards label-free biochemical analysis"
[3] 2010, **Best Conference Paper Award** on 4th Asia International Symposium on Mechatronics (AISM 2010) for "Neural networks based system identification for an unmanned helicopter system"
[4] 2010, **Award finalist**, Best Student Conference Paper Award and Best Poster Award on IEEE CASE 2010 for "Automated vision-based force measurement of moving C. elegans"
[5] Winner of the **Best Student Conference Paper Award** on IEEE/ASME MESA 2008 for "A novel wall climbing device based on Bernoulli effect"
[6] Winner of the **Best Conference Paper Award** on IEEE CASE 2007 for "Autonomous zebrafish embryo injection using a microrobotic system"