Hong Zhang, PhD

Professor, FIEEE, FCAE

Research Interests

Robotics, Computer Vision, Image Processing

Education

1986–87 **PDF**, *University of Pennsylvania*, Philadelphia, Pennsylvania, USA.
GRASP Laboratory, Department of Computer and Information Science

1982–86 **PhD**, *Purdue University*, West Lafayette, Indiana, USA.
PhD in Electrical Engineering
Supervisor: Richard (Lou) Paul

1980–82 **BSc**, *Northeastern University*, Boston, Massachusetts, USA.
Bachelor of Science in Electrical Engineering (with the Highest Class GPA)

1978–80 Beijing Polytechnic University, Beijing, China
Bachelor of Science in Automatic Control

Employment

2000–present Professor, Department of Computing Science, University of Alberta, Canada
2002–03 Senior Fellow, Nanyang Technological University, Singapore
1994–00 Associate Professor, Department of Computing Science, University of Alberta, Canada
1994–95 STA Fellow, Mechanical Engineering Laboratory, MITI, Japan
1988–94 Assistant Professor, Department of Computing Science, University of Alberta, Canada

Adjunct Appointments

2015–present 100-Scholar Chair Professor, Guangdong University of Technology, China
2008–11 100-Scholar Chair Professor, South China University of Technology, China
2006–11 985 Professor, Northeast University, China
2002–03 Peking University, China
2001–04 Beijing Institute of Technology, China

Research Chair

2003–17 Senior NSERC Industrial Research Chair in Intelligent Sensing Systems

Centre Director

2000–17 Director, the Centre for Intelligent Mining Systems, University of Alberta

1443 Herring-Cooper Way, Edmonton, Alberta – Canada
hzhang@ualberta.ca • *www.cs.ualberta.ca/~zhang*

Awards and Distinctions

2018 **IROS Distinguished Service Award**, *IROS Awards Committee*.

2018 **Distinguished Visiting Scholar**, *Centre for Autonomous Systems*, University of Technology Sydney, Sydney, Australia.

2015 **Best Conference Paper**, *The 7th IEEE International Conference on Robotics, Automation and Mechatronics (RAM)*, Angkor Wat, Cambodia.

2015 **Fellow**, *Canadian Academy of Engineering*, CAE.

2014 **Fellow**, *Institute of Electrical and Electronic Engineering*, IEEE.

2009 **Best Student Paper**, *2008 IEEE International Conference on Robotics and Biomimetics*, Bangkok, Thailand.

2008 **Alberta Science/Technology Award**, *Syncrude/ASTech Innovation in Oil Sands Research*, ASTech Foundation, Alberta.

2008 **Member of the Year**, *Association of Chinese Canadian Professors*, ACCP.

2007 **Best Paper in Robotics**, *2007 IEEE International Conference on Mechatronics and Automation (ICMA)*, Harbin, China.

2006 **Award for Research Excellence and Service to the Research Community**, *Canadian Information Processing and Pattern Recognition Society*, CIPPRS.

2004 **Best Student Paper**, *2004 IEEE International Conference on Robotics and Biomimetics (ROBIO)*, Shenyang, China.

2004 **Member of the Year**, *Association of Chinese Canadian Professors*, ACCP.

2003 **Best Student Paper**, *16th International Conference on Vision Interface*, Nova Scotia, Canada.

2002 **Award for Excellent Teaching**, *Faculty of Science*, University of Alberta.

2002 **Member of the Year**, *Association of Chinese Canadian Professors*, ACCP.

2000 **IEEE Millennium Medal**, IEEE.

Plenaries, Keynote Speeches and Invited Talks

2016 **Keynote**, *World Robot Conference*, Beijing, China, October 23, 2016.

2015 **Keynote**, *2015 IEEE International Conference on Robotics and Biomimetics*, Zhuhai, China, December 8, 2015.

Keynote, *World Robot Conference*, Beijing, China, November 23, 2015.

Keynote, *2015 Int'l Conference on Real-Time Computing and Robotics*, Changsha, China, June 26, 2015.

2014 **Semi-Plenary**, *The 13th International Conference on Control, Automation, Robotics and Vision (ICARCV)*, Singapore, December 11, 2014.

Plenary, *The 4th Annual IEEE International Conference on Cyber Technologies in Automation, Robotics and Intelligent Systems (CYBER)*, Hong Kong, June 7, 2014.

2013 **Invited Talk**, *IFAC ICONS Workshop*, Chengdu, China, September 2, 2013.

2011 **Plenary**, *CVR 2011 International Vision Conference*, York University, Canada.
June 15-18, 2011

2010 **Panelist**, *2010 IEEE International Conference on Robotics and Biomimetics*, Tianjin, China, December 2010.

Invited Talk, *Institute of Robotics and Intelligent Information Processing*, Shanghai Jiaotong University, Shanghai, China, December, 2010.

Invited Talk, *2nd Int'l Workshop on Recent Trends in Computer Vision*, Tokyo, Japan, September 2010.

Invited Talk, *Computer Vision Workshop, Beijing University*, Beijing, China, July 2009.

2009 **Plenary**, *7th International Conference on Advances in Pattern Recognition*, Calcutta, India, February 6th, 2009.

2007 **Plenary**, *Chinese Process Control Conference*, Anshan, China, August 2007.

Public Talk, *iCORE Lecture*, Calgary, Canada, February 23, 2005.

2004 **Plenary**, *2004 International Conference on Intelligent Mechatronics and Automation*, Chengdu, China, August 31, 2004.

Plenary, *First Canadian Conference and Computer and Robot Vision*, London, Canada, June 2004.

Keynote, *Canadian Conference on Artificial Intelligence, Workshop on Agents Meet Robots*, London, Canada, June 2004.

Plenary, *First International Conference on Information Acquisition*, Hefei, China, June 2004.

2003 **Plenary**, *International Conference on Control Science and Engineering*, Harbin, China, December 2003.

2001 **Invited Talk**, *AI Seminar*, Department of Computing Science, University of Alberta, October 19, 2001.

Keynote, *2001 International Workshop on Bio-Robotics and Tele-operation*, Beijing, China, May 30, 2001.

1998 **Invited Talk**, *Robotics Department, MEL-MITI*, Japan, June 10, 1998.

1995 **Distinguished Lecture**, *Department of Computing Science*, University of Alberta, November 21, 1995.

Invited Talk, *IEEE Robotics and Automation Society, Tokyo Chapter*, Tokyo, Japan, January 12, 1995.

1994 **Invited Talk**, *Electrotechnical Laboratory (ETL)*, Tsukuba, Japan, December 14, 1994.

Research Grants – Individual

2017-18	*Motion Capture System and Mobile Robot Vehicle for Indoor Autonomous Navigation Research*, NSERC Research Tools and Infrastructure (RTI)	**$36,604**
2016-19	*Oilsand Slurry Image and Video Analysis*, Syncrude Canada Ltd. Collaborative Research and Development	**$150,000**
2016-19	*Oilsand Slurry Image and Video Analysis*, NSERC Collaborative Research and Development (CRD)	**$290,970**
2016-21	*Developing Robot Autonomy via Invariant Representations* NSERC Discovery Grant	**$230,000**
2011-16	*Scalable Appearance-Based Robot Navigation*, NSERC Discovery Grant Program	**$120,000**
2010-15	*Intelligent Sensing Systems*, NSERC Industrial Research Chair Program	**$735,035**
2010-15	*Intelligent Sensing Systems*, Syncrude Canada Ltd., Industrial Research Chair	**$750,000**
2009-14	*Intelligent Sensing Systems*, Alberta Innovates Technology Future Industrial Chair Establishment Program	**$750,000**
2006-11	*Collective Robotics*, NSERC Discovery Grant Program	**$195,000**
2003-08	*Intelligent Sensing Systems*, NSERC Industrial Research Chair Program	**$806,045**
2003-08	*Intelligent Sensing Systems*, Syncrude Canada Ltd., Industrial Research Chair	**$500,000**
2003-08	*Intelligent Sensing Systems*, Matrikon, Industrial Research Chair	**$250,000**
2003-08	*Intelligent Sensing Systems*, iCORE Industrial Chair Establishment Program	**$750,000**
2003-04	*Experimental Testbed for Multi-Robot System Research*, NSERC Research Tools and Instruments (RTI)	**$44,602**
2001-06	*Cooperative Multi-Robot Systems*, NSERC Research Grant	**$189,900**
2000-02	*Sensing Large Lumps in the Hydrotransport System*, NSERC Collaborative Research and Development Grant	**$53,800**
2000-01	*Mobile Robot for Experimental Research*, NSERC Equipment Grant	**$28,785**

1999-01	*Oil Sand Lump Size Estimation (LSE) by 3-D Sensing*, Syncrude Canada Ltd. Research Grant	**$27,000**
1999-01	*Oil Sand Lump Size Estimation (LSE) by 3-D Sensing*, COURSE University Research Program (Alberta), Research Grants	**$120,000**
1999-00	*Wireless Ethernet Link for Robotics Research*, NSERC Equipment Grant	**$11,659**
1999-00	*Hybrid Tactile Sensing*, Foundation for Promotion of Advanced Automation Technology (FANUC), Japan	**$8,741**
1998-99	*Intelligent Sensing and Pattern Recognition for Measuring Gas Liquid Ratio in Two Phase Flow*, Precarn/Alberta Research Council	**$25,387**
1997-01	*Robot Dextrous Manipulation: Planning, Sensing, and Control* NSERC Research Grant	**$97,020**
1995-96	*Dextrous Robot Hand and Its Controller*, NSERC Equipment Grant	**$44,260**
1993-97	*Tactile Sensing in Robot Manipulation and Robot Sensor Planning* NSERC Operating Grant	**$72,000**
1993-94	*Collective Robotics*, Central Research Fund, University of Alberta	**$4,500**
1993-94	*Neural Network Based Control of Active Suspension*, Dendronic Decisions Limited	**$28,750**
1993-94	*Torque Control of Robot Joints*, Kajima Foundation, Japan	**$7,800**
1992-95	*Travel Grants*, Central Research Fund, University of Alberta	**$5,000**
1992-93	*Sensorized Gripper for Robotic Object Manipulation*, NSERC Equipment Grant	**$19,922**
1991-93	*Tactile-guided robot fine manipulation*, Foundation for Promotion of Advanced Automation Technology (FANUC), Japan	**$21,252**
1991-92	*An Experimental Teaching Methodology for an Undergraduate Robotics Course*, University of Alberta Teaching Research Fund	**$7,400**
1991-92	*Control of Robot Joints*, Central Research Fund, University of Alberta	**$1,800**
1990-93	*Force Control of Robot Manipulators*, NSERC Operating Grant	**$48,000**
1989-90	*Robust Compliant Motion of Robot Manipulators*, Central Research Fund University of Alberta	**$2,179**
1988-89	*A Sun/Unix Based Robot Control System*, Central Research Fund University of Alberta	**$9,000**

Research Grants – Group

2018-22	*NSERC Canadian Robotics Network Strategic Grant*, NSERC	**$5,500,000**
2012-17	*NSERC Canadian Field Robotics Network Strategic Grant*, NSERC Gregory Dudek (PI) and 9 co-PI's ($239,356 being my allocation)	**$5,000,000**
2008-10	*Collaborative Research with Beijing Genomics Institute - Shenzhen*, China Institute Grant, University of Alberta Gane Ka-Shu Wong (PI) and 4 co-PI's	**$129,446**
1998-99	*Laboratory for Advanced Visualization and Multimedia Research* NSERC Major Installation Grant Mark Green (PI) and 8 co-PI's	**$430,000**
1998-99	*Imaging Systems Equipment for Collaborative Multimedia Projects* University of Alberta AECD Internal Allocation Committee Anup Basu (PI)	**$140,000**
1997-98	*Panoramic Viewing for Telepresence*, NSERC Collaborative Research and Development (CRD), Anup Basu (PI) and 1 co-PI	**$50,000**
1994-97	*Experimental Computing Research Group*, NSERC Infrastructure Xiaobo Li (PI) and 8 co-PI's	**$120,000**
1993-94	*Robots in Hazardous Environments under Poor Visibility*, NSERC CRD Anup Basu (PI)	**$87,000**

1991-94 *Artificial Intelligence - Robotics - Vision Group*, NSERC Infrastructure **$135,000**
Randy Goebel (PI) and 8 co-PI's

1990-91 *Multiprocessor CPU and File/Backup Server Replacement*, NSERC Major **$194,300**
Equipment, Tony Marsland (PI) and 26 co-PI's

1990-91 *Artificial Intelligence - Robotics - Vision Group*, NSERC Infrastructure, **$45,000**
Renee Elio (PI)

1990-91 *Artificial Intelligence Research Laboratory/Robotics Research Laboratory*, **$36,984**
NSERC Equipment, Randy Goebel (PI) and 5 co-PI's

1990-91 *Network File Server*, NSERC Equipment, Tony Marsland (PI) and 1 co-PI **$21,279**

Service – Conference Organization

2020-2022 **Editor-in-Chief**, *IROS, Conference Paper Review Board.*

2019 **Senior Program Committee (SPC) Member**, *2019 IEEE International Conference on Robotics and Automation (ICRA).*

Travel Award Chair, *2019 IEEE International Conference on Robotics and Automation (ICRA).*

2018 **Senior Program Committee (SPC) Member**, *2018 IEEE International Conference on Intelligent Robots and Systems (IROS).*

General Chair, *2018 IEEE International Conference on Robotics and Biomimetics (ROBIO).*

2017 **General Chair**, *2017 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS).*

2016 **Senior Program Committee (SPC) Member**, *2016 IEEE/RSJ International Conference on Intelligent Robots Systems (IROS).*

2015 **Program Chair**, *2015 IEEE International Conference on Cyber Technologies in Automation, Robotics and Intelligent Systems.*

Awards Co-Chair, *2015 IEEE/RSJ International Conference on Robots and Intelligent Systems (IROS).*

Awards Chair, *2015 IEEE International Conference on Mechatronics and Automation (ICMA).*

2014 **Awards Co-Chair**, *2014 IEEE International Conference on Robotics and Automation (ICRA).*

2013 **Senior Program Committee (SPC) Member**, *2013 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS).*

2012 **General Chair**, *2012 IEEE International Conference on Robotics and Biomimetics (ROBIO).*

2011 **Video Chair**, *2011 IEEE International Conference on Robotics and Automation (ICRA).*

Area Chair, *2011 IEEE International Conference on Computer Vision and Pattern Recognition (CVPR).*

Awards Committee Chair, *2011 IEEE International Conference on Control and Logistics (ICAL).*

Program Co-Chair, *2011 IEEE International Conference on Systems, Man, and Cybernetics.*

2010 **General Chair**, *2010 IEEE International Conference on Mechatronics and Automation (ICMA).*

Video Co-Chair, *2010 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS).*

Area Chair, *2010 Asian Conference on Computer Visios (ACCV).*

2009 **General Chair**, *2009 IEEE International Conference on Information and Automation (ICIA).*

Award Committee Chair, *2009 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS).*

Area Chair, *2009 Asian Conference on Computer Visios (ACCV).*

2008 **Award Committee Chair**, *2008 IEEE International Conference on Automation and Logistics (ICAL).*

Award Committee Chair, *2008 IEEE International Conference on Information Acquisition.*

Program Co-Chair, *2008 World Congress on Intelligent Control and Automation.*

2007 **Program Co-Chair**, *2007 IEEE International Conference on Automation and Logistics.*

2006 **General Chair**, *2006 IEEE International Conference on Robotics and Biomimetics.*

Workshop/Tutorial Chair, *2006 IEEE/RSJ International Conference on Intelligent Robots and Systems.*

2005 **Program Chair**, *2005 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS).*

General Co-Chair, *2005 IEEE International Conference on Robotics and Biomimetics.*

2004 **Program Co-Chair**, *2004 IEEE International Conference on Information Acquisition.*

Invited Sessions Chair, *2004 IEEE International Conference on Robotics and Biomimetics.*

2003 **Tutorial and Workshop Co-Chair**, *2003 CIRA.*

Publication Chair, *RISSP 2003.*

2002 **Program Co-Chair**, *Vision Interface 2002.*

2001 **Program Chair**, *2001 IEEE International Symposium on Computational Intelligence in Robotics and Automation.*

1999 **Local Arrangement Chair**, *1999 IEEE Canadian Conference on Electrical and Computer Engineering.*

Service – Program Committee Members

2017–18 Robotics: Science and Systems (RSS)

2017 Annual Conference on Robot Learning (CoRL)

2006–11 IEEE International Conference on Robotics and Automation (ICRA)

2000–01 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)

2004–11 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)

2005–11 IEEE International Conference on Robotics and Biomimetics (ROBIO)

2006, 2008 International Conference on Control, Automation, Robotics and Vision (ICARCV)

2006, 2008 World Congress on Intelligent Control and Automation (WCICA)

2005–07 IEEE International Conference on Systems, Man and Cybernetics (SMC)

2005 IEEE/ASME Advanced Intelligent Mechatronics (AIM)

2005–07 IEEE International Conference on Mechatronics and Automation (ICMA)

2004 IEEE International Conference on Intelligent Mechatronics and Automation

2004–06 International Conference on Information and Automation (ICIA)

2004 IEEE International Conference on Robotics, Automation and Mechatronics (RAM)

2004-2017 Canadian Conference on Computer and Robot Vision (CRV)

2004–05 Canadian Conference on Artificial Intelligence (AI)

2001–03 Vision Interface (VI)

2003 CIAC (Chinese Intelligent Automation Conference (CCC))

2002 IASTED International Conference on Robotics and Applications

2001 First International Workshop on Bio-Robotics and Teleoperation

2004, 2005 Canadian Conference on Artificial Intelligence

2000 Canadian Conference on Electrical and Computer Engineering (CCECE)

1999 International Conference on Advanced Robotics (ICAR)

1999 IEEE International Conference on Systems, Man, and Cybernetics (SMC)

1998 IARP Workshop on Humanoid and Human Friendly Robotics

Service – Journal Editorial Boards

2011–present **Member of Editorial Board**, *Robotics*, MDPI.

2013–present **Member of Editorial Board**, *RoboMech*, Springer Open.

2013–present **Member of Editorial Board**, *Robotics and Biomimetics*, Springer Open.

2013–2017 **Associate Editor**, *IEEE Transaction on Cybernetics*, IEEE.

2003–13 **Associate Editor**, *IEEE Transaction on Systems, Man, and Cybernetics*, IEEE.

2003–12 **Member of the Editorial Board**, *International Journal of Humanoid Robotics*, World Scientific.

2011–present **Member of the Editorial Board**, *International Journal of Mechatronics and Automation*, Inderscience Publishers.

2006 **Guest Editor**, *Advanced Robotics, Volume 20, Number 11*, Taylor & Francis Online.

2004 **Guest Editor**, *Journal of Advanced Computational Intelligence and Intelligent Informatics, Volume 20, Number 3*, Fuji Technology Press.

2003 **Guest Editor**, *IEEE Transactions on Systems, Man, and Cybernetics:Part A, "Collective Intelligence"*, IEEE.

2002 **Guest Editor**, *Journal of Image and Vision Computing*, Vision Interface 2002, Elsevier.

Service – Others

2018–2020 **Secretary**, *Administrative Committee*, IEEE Robotics and Automation Society.

2017–Present **Graduate Admissions Chair**, *Department of Computing Science*, University of Alberta.

2017–18 **Member**, *Canada Research Chair Advisory Committee*, Faculty of Science, University of Alberta.

2016–19 **Member**, *Computer Science Evaluation Group, Discovery Grants Program, NSERC.*

2018–Present **Chair**, *IEEE Medal for Environmental and Safety Technologies Committee.*

2015–2017 **Member**, *IEEE Medal for Environmental and Safety Technologies Committee.*

2014–16 **Member**, *Administrative Committee, IEEE Robotics and Automation Society.*

2013–14 **Graduate Admissions Chair**, *Department of Computing Science*, University of Alberta.

2012–present **Founding Council Chair**, *IEEE International Conference on Mechatronics and Automation.*

2012 **Member**, *Conference Management Committee, IEEE Society on Systems, Man, and Cybernetics.*

2005–15 **Chair**, *Robotics and Intelligent Sensing Technical Committee, IEEE Society on Systems, Man, and Cybernetics.*

Teaching

Undergraduate

ENCMP 100	Computer Programming for Engineers	1988-89
CMPUT 215	Programming with Data Structures	1989
CMPUT 229	Computer Organization and Architecture I	13 semesters, 1988-2005
CMPUT 329	Computer Organization and Architecture II	15 semesters, 1989-2013
CMPUT 412	Experimental Mobile Robotics	9 semesters, 1993-2017
CMPUT 498	Topics in Computing Science - Individual Studies	

Graduate

CMPUT 605	Topics in Computing Science - Individual Studies	
CMPUT 512	Introduction to Robotics	6 semesters, 1988 - 2002
CMPUT 631	Robotics and Multi-Robot Sytems	2004
CMPUT 631	Introduction to Robotics: Sensing and Navigation	2006

CMPUT 631	Visual Robot Navigation	4 semesters, 2008-14
CMPUT 631	Autonomous Robot Navigation	2017

Publications – in Archival Journals

2018 Qizi Huangpeng, Hong Zhang, Xiangrong Zeng and Hui Wang, "Automatic Visual Defect Detection Using Texture Prior and Low-Rank Representation", IEEE Access, Volume 6, Issue 1, December 2018, pp. 37965–37976.

2018 Xuefeng Zhou, Jiang Li, Yisheng Guan, Haifei Zhu, Dan Huang, Taobo Cheng, Hong Zhang, "Energy-optimal Motion Planning of A Biped Pole-Climbing Robot with Kinodynamic Constraints", Industrial Robot: An International Journal, Vol. 45, Issue 3, 2018, pp. 343-353.

2018 Yi Hou, Hong Zhang, and Shilin Zhou, "BoCNF: Efficient Image Matching with Bag of ConvNet Features for Scalable and Robust Visual Place Recognition", Autonomous Robots, Vol. 42, Issue 6, August 2018, pp. 1169-1185.

2018 Fengkui Cao, Yan Zhuang, Hong Zhang, and Wei Wang, "Robust Place Recognition and Loop Closing in Laser-Based SLAM for UGVs in Urban Environments", IEEE Sensors Journal, Vol. 18, No. 10, May 2018, pp. 4242–4252.

2018 Li He and Hong Zhang, "Kernel K-means Sampling for Nystrom Approximation", IEEE Transactions on Image Processing, Vol. 27, Issue 5, May 2018, pp. 2108–2120.

2018 Li He, Nilanjan Ray, Yisheng Guan, and Hong Zhang, "Fast Large-Scale Spectral Clustering via Explicit Feature Mapping", to appear in IEEE Transactions on Cybernetics.

2018 Haifei Zhu, Shichao Gu, Li He, Yisheng Guan, and Hong Zhang, "Transition Analysis and Its Application to Global Path Determination for a Biped Climbing Robot", Applied Sciences 2018, 8(1), 122.

2018 Weinan Chen, Shichao Gu, Yisheng Guan, Hong Zhang, Haifei Zhu, and Lei Zhu, "Representation of Truss-style Structures for Autonomous Climbing of Biped Pole-climbing Robots", Robotics and Autonomous Systems, Volume 101, March 2018, Pages 126-137.

2018 Homa Foroughi, Nilanjan Ray, and Hong Zhang, "Object Classification with Joint Projection and Low-rank Dictionary Learning", IEEE Transactions on Image Processing, Volume 27, Issue 2, February 2018, pp. 806–821.

2017 Hou, Y., Zhang, H., Zhou, S. and Zou, H., "Use of Roadway Scene Semantic Information and Geometry-Preserving Landmark Pairs to Improve Visual Place Recognition in Changing Environments", IEEE Access, 2017(5), pp. 7702-7713.

2017 Xiao-Long Wang, Hong Zhang, and Guohua Peng, "Combining Multiple Image Descriptions for Loop Closure Detection", Journal of Intelligent & Robotic Systems, https://doi.org/10.1007/s10846-017-0755-7.

2017 Yi Hou, Hong Zhang, and Shilin Zhou, "Evaluation of Object Proposals and ConvNet Features for Landmark-Based Visual Place Recognition", Journal of Intelligent & Robotic Systems, https://doi.org/10.1007/s10846-017-0735-y.

2017 Yi Hou, Hong Zhang, Shilin Zhou and Huanxin Zou, "Efficient ConvNet Feature Extraction with Multiple RoI Pooling for Landmark-based Visual Localization of Autonomous Vehicles", Mobile Information Systems, Volume 2017 (2017), Article ID 8104386, 14 pages.

2017 Xiaolong Wang, Hong Zhang and Guohua Peng, "A Chordiogram Image Descriptor Using Local Edgels", Journal of Visual Communication and Image Representation, Volume 49, November 2017, pp. 129–140.

2017 Li He, Nilanjan Ray, and Hong Zhang, "Error Bound of Nystrom-approximated NCut Eigenvectors and Its Application to Training Size Selection", Neurocomputing, May 24, 2017, pp. 130-142.

2017 Yi Hou, Hong Zhang, and Shilin Zhou, "Tree-based Indexing for Real-time ConvNet Landmark-Based Visual Place Recognition", International Journal of Advanced Robotic Systems, Volume 14, January 2017, pp. 1-13.

2016 Moein Shakeri and Hong Zhang, "COROLA: A Sequential Solution to Moving Object Detection Using Low-rank Approximation", Computer Vision and Image Understanding, Volume 146, May 2016, pp. 27-39.

2016 Li He and Hong Zhang, "Iterative Ensemble Normalized Cuts", Pattern Recognition, Vol. 52, April 2016, pp. 274–286.

2016 Jing Yang, Hong Zhang, and Guo Hua Peng,"Time-Domain Period Detection in Short-Duration Videos", Signal, Image and Video Processing, Vol. 10, No. 4, April 2016, pp. 695-702.

2015 Homa Foroughi, Nilanjan Ray, and Hong Zhang, "Robust People Counting using Sparse Representation and Random Projection", Pattern Recognition, Vol. 45, No. 10, October 2015, pp. 3038–3052.

2015 Haifei Zhu, Yisheng Guan, Wenqiang Wu, L Zhang, Xuefeng Zhou, and Hong Zhang, "Autonomous Pose Detection and Alignment of Suction Modules of a Biped Wall-Climbing Robot", IEEE-ASME Transactions on Mechatronics, Vol. 2, No. 2, April 2015, pp. 653-662.

2014 Xuefeng Zhou, Yisheng Guan, Haifei Zhu, Wenqiang Wu, Xin Chen, Hong Zhang, and Yuli Fu, "Bibot-U6: A Novel 6-DoF Biped Active Walking Robot - Modeling, Planning and Control", International Journal of Humanoid Robotics, Vol. 11, No. 2, April 2014.

2014 Haifei Zhu, Yisheng Guan, W. Wu, X. Chen, X. Zhou, and Hong Zhang, "A Binary Approximating Method for Graspable Region Determination of Biped Climbing Robots", Advanced Robotics, Vol. 28, No. 21, 2014, pp. 1405-1418.

2014 Mohamed Bensalah, Ismail Ben Ayed, Jing Yuan, and Hong Zhang, "Convex-Relaxed Kernel Mapping for Image Segmentation", IEEE Transactions on Image Processing, Vol. 23, Issue 3, March 2014, pp. 1143-1153.

2014 Zhijie Wang, Mohamed Bensalah, and Hong Zhang, "Object Joint Detection and Tracking Using Adaptive Multiple Motion Models", The Visual Computer, Vol. 30, Issue 2, February 2014, pp. 173-187.

2013 Hui Wang, Hong Zhang, and Nilanjan Ray,"Adaptive Shape Prior in GraphCut Image Segmentation", Pattern Recognition, Vol. 46, Issue 5, May 2013, pp. 1409-1414.

2013 Xuefeng Zhou, Yisheng Guan, Li Jiang, Haifei Zhu, Chuanwu Cai, Wenqiang Wu and Hong Zhang, "Stability of Biped Robotic Walking with Frictional Constraints", Robotica, Volume 31, Issue 04, July 2013, pp. 573-588.

2013 Guan, Y., Zhu, H., Wu, W., Zhou, X., Jiang, L., Cai, C., Zhang, L., and Zhang, H., "A Modular Biped Wall-Climbing Robot with High Mobility and Manipulating Function", IEEE/ASME Transactions on Mechatronics, Volume 18, Issue 6, December 2013, pp. 1787–1798.

2013 Robert Stewart and Hong Zhang, "A note concerning the distances of uniformly distributed points from the centre of a rectangle", Bulletin of the Australian Mathematical Society, Vol. 87, No. 1, 2013.

2012 Zhengwei Zhang, Hong Zhang, and Yibin Li, "Biologically inspired collective construction with visual landmarks", Journal of Zhejiang University-SCIENCE C, May 2012, Volume 13, Issue 5, pp.315-327.

2012 Zhijie Wang, Mohamed Bensalah, Hong Zhang, and Nilanjan Ray, "Shape based appearance model for kernel tracking", Image and Vision Computing, Vol. 30, Issue 4-5, May 2012, pp. 332-344.

2012 Nilufar, S., Ray, N., and Zhang, H., "Object Detection with DoG Scale-Space: A Multiple Kernel Learning Approach", IEEE Transactions on Image Processing, Vol. 21, Issue 8, pp. 3744-3756, 2012.

2012 Hui Wang, Hong Zhang and Nilanjan Ray, "Clump Splitting Via Bottleneck Detection and Shape Classification", Pattern Recognition, Volume 24, Issue 7, July 2012, pp. 2780-2787.

2012 Baidya Nath Saha, Nilanjan Ray, Russell Greiner, Albert Murtha and Hong Zhang, "Quick Detection of Brain Tumors and Edemas: A Bounding Box Method Using Symmetry", Computerized Medical Imaging and Graphics, Volume 36, Issue 2, March 2012, pp. 95-107.

2012 Jichuan Shi, Nilanjan Ray and Hong Zhang, "Shape Based Local Thresholding for Binarization of Document Images", Pattern Recognition Letters, Volume 33, Issue 1, January 2012, pp. 24-32.

2011 Christopher A. C. Parker and Hong Zhang,"Biologically Inspired Collective Comparisons by Robotic Swarms", International Journal of Robotics Research, April 2011, Vol.30, No. 5, pp. 524-535.

2011 Yisheng Guan, Hong Zhang, Xianmin Zhang and Zhangjie Guan, "Workspace Generation of Multi-fingered Manipulation", Advanced Robotics, Vol. 25, No. 18, 2011, pp. 2293-2317.

2010 Christopher A. C. Parker and Hong Zhang, "Collective Unary Decision-Making by Decentralized Multiple-Robot Systems Applied to the Task-Sequencing Problem", Swarm Intelligence, Volume 4, Number 3, May 2010, pp. 199-220.

2009 B. Saha, N. Ray, and H. Zhang, "Snake Validation: A PCA-Based Outlier Detection Method", IEEE Signal Processing Letters, Vol. 16, No. 6, June 2009.

2009 D. P. Mukherjee, Y. Potapovich, I. Levner, I. and H. Zhang, "Ore Image Segmentation by Learning Image and Shape Features", Pattern Recognition Letters, Volume 30, Issue 6, April 2009, pp. 615–622.

2009 M. Polak, H. Zhang, and M. Pi, "An Evaluation Metric for Image Segmentation of Multiple Objects", Image and Vision Computing, Volume 27, Issue 8, July 2009, pp. 1223-1227.

2009 Christopher Parker and Hong Zhang, "Cooperative Decision-Making in Decentralized Multi-Robot Systems: the Best-of-N Problem", IEEE/ASME Transactions on Mechatronics, Volume 14, Issue 2, April 2009, pp. 240-251.

2008 I. Levner, H. Zhang, and R. Greiner, "Heterogeneous Stacking for Classification Driven Watershed Segmentation", EURASIP Journal on Advances in Signal Processing, Special Issue on Machine Learning in Image Processing, January 2008, pp. 1 – 9.

2007 Ilya Levner and Hong Zhang, "Classification Driven Watershed Segmentation", IEEE Transactions on Image Processing, Volume 16, Number 5, May 2007, pp. 1437-1445..

2007 Ricardo Ferrari, Hong Zhang, and Ron Kube, "Real-Time Detection of Steam in Video Images", Pattern Recognition, Volume 40, Issue 3, March 2007, pp. 1148-1159..

2006 Mingong Pi, Chong Sze Tong, and Hong Zhang, "A Fast and Effective Model for Wavelet Subband Histograms and Its Application in Texture Image Retrieval", IEEE Transactions on Image Processing, Vol: 15, No.10, Oct. 2006, pp. 3078-3088.

2006 Christopher Parker and Hong Zhang, "Collective Robotic Site Preparation", Journal of Adaptive Behavior, 2006, 14:5-19.

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