


Curriculum Vitae for XMUM Official Website

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	Current Position	PROFESSOR
		Fellow SCAAST, Senior Member IEEE
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RESEARCH INTERESTS

Computer Vision, Robotics, Artificial Intelligence

EDUCATIONAL BACKGROUND

- 1989 PhD, School of Computer Studies, University of Leeds, Leeds, UK.
- 1982 BEng in Computers and Applications, Yanshan University, China

WORKING EXPERIENCE

- 1982 – 1985, Teacher, Shanghai Inst. Of Mech. Tech.
- Jul 1988 - Nov 1988 Visiting Scientist, Computer Science Dept, Carnegie Mellon University, USA
- Oct 1989 - Sep 1992 Research Officer, Dept of Engineering Science, Oxford University
- Oct. 1992 – Jan. 2022 Lecturer, Senior Lecturer, Associate Professor, NTU
- 1 Aug 1997 - 15 May 2004 Deputy Director, Centre for Graphics & Imaging Technology, NTU (concurrent appointment)
- August 1999 – July 2000, Visitor on Sabbatical, Monash University, Clayton Campus, Australia
- 3 Feb 2022, Dean, School of EE and AI, Xiamen University Malaysia

RESEARCH EXPERIENCE / GRANTS

Using Stereovision System On A Fast Moving Unmanned Ground Vehicle (M-RP1A)	S\$490,000	PI	2015 2020
Obstacle Detection For USV At Night (M-RP1B)	S\$200,000	PI	2015 2021
Urban Obstacle Detection For Unmanned Aerial Vehicles (M-RP1C)	S\$102,517	PI	2015 2021

REPRESENTATIVE PUBLICATIONS

Journal Papers

[1]Rui Jiang, Xinghua Liu, **Han Wang**, and Shuzhi Sam Ge, "Secure Estimation for Attitude and Heading Reference Systems under Sparse Attacks", *IEEE Sensors Journal*, 19(2), 641-649, 2019.#

[2]R. Jiang, H. Zhou, **H. Wang**, and S. S. Ge, "Road-constrained geometric pose estimation for ground vehicles," *IEEE Transactions on Automation Science and Engineering*, 748-760 Oct. 2019.DOI: 10.1109/tase.2019.2942069#

[3]Keyu Wu, Mahdi Abolfazli Esfahani, Shenghai Yuan, **Han Wang**, "TDPP-Net: Achieving Three-Dimensional Path Planning via a Deep Neural Network Architecture", *Neurocomputing*, 357, 151-162, 2019. DOI: 10.1016/j.neucom.2019.05.001#

[4] Rui Jiang, Hui Zhou, Shuzhi Sam Ge, Han Wang. "Maximum Entropy Searching", *CAAI Transactions on Intelligence Technology*, 4(1), 2019.

[5]Esfahani, M. A., Wu, K., Yuan, S., & **Wang, H.**, DeepDSAIR: Deep 6-DOF camera relocalization using deblurred semantic-aware image representation for large-scale outdoor environments. *Image and Vision Computing*, 89, 120-130. 2019##

[6]Mahdi Abolfazli Esfahani, **Han Wang**, Keyu Wu1, and Shenghai Yuan, "AbolDeepIO: A Novel Deep Inertial Odometry Network for Autonomous Vehicles", *IEEE TRANSACTIONS ON INTELLIGENT TRANSPORTATION SYSTEMS*, VOL. 21, NO. 5, MAY 2020, doi: 10.1109/TITS.2019.2909064, 2019##

[7]Xinghua Liu, Rui Jiang, Han Wang, Shuzhi Sam Ge, "Filter-based Secure Dynamic Pose Estimation for Autonomous Vehicles", *IEEE Sensors Journal*, 2019. 19(15), 6298-6308.#

[8] Zhang, Handuo, Karunasekera Hasith, and **Han Wang**. "A consistent and long-term mapping approach for navigation." *International Journal of Research in Advent Technology (IJRAT)*, 2019.

[9]Esfahani, M. A., **Wang, H.**, Wu, K., & Yuan, S. "OriNet: Robust 3-D Orientation Estimation with a Single Particular IMU". *IEEE Robotics and Automation Letters*, 5(2), 399-406. 2020

[10]Karunasekera, Hasith, **Han Wang**, and Handuo Zhang. "Energy Minimization Approach for Negative Obstacle Region Detection." *IEEE Transactions on Vehicular Technology* 68.12 (2019): 11668-11678.##

[11]Karunasekera, Hasith, **Han Wang**, and Handuo Zhang. "Multiple Object Tracking with Attention to Appearance, Structure, Motion and Size." *IEEE Access* 7 (2019): 104423-104434.#

[12]Mahdi Esfahani MA, Wu K, Yuan S, **Wang H**. From local understanding to global regression in monocular visual odometry. *International Journal of Pattern Recognition and Artificial Intelligence*. 2019 May 23. Vol. 34, No. 01, 2055002 (2020), DOI: 10.1142/S0218001420550022###

[13]Mahdi Abolfazli Esfahani, Han Wang, Keyu Wu, Shenghai Yuan, "OriNet: Robust 3D Orientation Estimation with a Single Particular IMU", *IEEE Robotics and Automation Letters (RA-L)*, vol. 5, no. 2, pp. 399-406, April 2020, doi: 10.1109/LRA.2019.2959507.

[14]Keyu Wu, Han Wang, Mahdi Abolfazli Esfahani, Shenghai Yuan, "Achieving Real-Time Path Planning in Unknown Environments Through Deep Neural Networks", *IEEE Transactions on Intelligent Transportation Systems*, pp. 1-10, Oct 2020, doi: 10.1109/TITS.2020.3031962.###

[15] Mahdi Abolfazli Esfahani, Han Wang, Benyamin Bashari, Keyu Wu, Shenghai Yuan, "Learning to extract robust handcrafted features with a single observation via evolutionary neurogenesis", *Applied Soft Computing*, VOL 106, 2021, doi: 10.1016/j.asoc.2021.107424

[16] Keyu Wu, Han Wang, Mahdi Abolfazli Esfahani, Shenghai Yuan, "Learn to Navigate Autonomously through Deep Reinforcement Learning ", *IEEE Transactions on Industrial Electronics*, 2021, Vol 69(5), 5342-5352.###, DOI: 10.1109/TIE.2021.3078353, IF 13.85

[17] Keyu Wu, Mahdi Abolfazli Esfahani, Shenghai Yuan, **Han Wang**, " BND*-DDQN: Learn to Steer Autonomously through Deep Reinforcement Learning", *IEEE Transactions on Cognitive and Developmental Systems*, June 2021, VOL 13(2), 249-261, DOI: 2019. 10.1109/TCDS.2019.2928820

[18] Shenghai Yuan, Han Wang, Lihua Xie, "Survey on Localization Systems and Algorithms for Unmanned Systems", *Unmanned Systems*, Vol. 9, No. 2 (2021) 1–35

[19] Guiju Ping, Mahdi Abolfazli Esfahani, Jiaying Chen, and Han Wang. Visual enhancement of single-view 3d point cloud reconstruction. *Computers & Graphics*, 2022. accepted

Conference Papers

H. Zhou and H. Wang, "Real-time Robust Multi-lane Detection and Tracking in Challenging Urban Scenarios." *Advanced Robotics and Mechatronics (ICARM), 2019 IEEE International Conference on*. IEEE, 2019

Mahdi Abolfazli Esfahani, Keyu Wu, Shenghai Yuan , Han Wang, "Towards Utilizing Deep Uncertainty In Traditional SLAM", *2019 IEEE 15th International Conference on Control and Automation (ICCA)*, 2019

Karunasekera, Hasith, Handuo Zhang, and Han Wang. "Real Time Multiple Object Tracking using Deep Features and Localization Information." *2019 IEEE 15th International Conference on Control and Automation (ICCA)*. 2019

Keyu Wu, Mahdi Abolfazli Esfahani, Shenghai Yuan, Han Wang, " Depth-based Obstacle Avoidance through Deep Reinforcement Learning", *International Conference on Mechatronics and Robotics Engineering, ICMRE 2019*. ACM, 2019.

Chen Jiaying, **Han Wang**, “An Obstacle Detection Method for USV by Fusing of Radar and Motion Stereo,” in *The 16th IEEE International Conference on Control and Automation (IEEE ICCA)*, 2020.

G Ping, and **H Wang**, “3D Reconstruction from A Single Image”, In Proc. 9th IEEE International Conference on Cybernetics and Intelligent Systems (CIS) and the 9th IEEE International Conference on Robotics, Automation and Mechatronics (RAM), 2019, Bangkok.

Hui Zhou, **Han Wang**, Handuo Zhang, Karunasekera Hasith. “LaCNet: Real-time End-to-End Arbitrary-shaped Lane and Curb Detection with Instance Segmentation Network”, in Proc. 16th International Conference on Control, Automation, Robotics and Vision (ICARCV). IEEE, 2020: 184-189.

Mahdi Abolfazli Esfahani, **Han Wang**, Keyu Wu, Shenghai Yuan, “OriNet: Robust 3D Orientation Estimation with a Single Particular IMU”, in Proc. *International Conference on Robotics and Automation (ICRA)*, 2020#

Mahdi Abolfazli Esfahani, **Han Wang**, Keyu Wu, Shenghai Yuan, “Unsupervised Scene Categorization, Path Segmentation and Landmark Extraction while Traveling Path”, in Proc. *International Conference on Control, Automation, Robotics and Vision (ICARCV)*, 2020

Ping, Guiju, Mahdi Abolfazli Esfahani, **Han Wang**, “Unsupervised 3D Primitive Shape Detection Using Mathematical Models”, in Proc. *International Conference on Control, Automation, Robotics and Vision (ICARCV)*, 2020

Niraj Bhujel*, **Han Wang**, Wei Yun Yau, “Using Attention based LSTM for Multi-people Trajectory Tracking and Prediction”, in Proc. IEEE International Conference on Control & Automation (ICCA 2020)

Niraj Bhujel*, Jun Li, Wei-Yun Yau, **Han Wang**, “Towards Understanding and Inferring the Crowd: Guided Second Order Attention Networks and Re-identification for Multi-object Tracking”, In Proc. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2020)#

Chen, J., & **Wang, H.** (2020, October). An Obstacle Detection Method for USV by Fusing of Radar and Motion Stereo. In *2020 IEEE 16th International Conference on Control & Automation (ICCA)* (pp. 159-164). IEEE.

Niraj Bhujel*, Wei-Yun Yau, Han Wang, Vijay Prakash Dwivedi, "Self-critical Learning of Influencing Factors for Trajectory Prediction using Gated Graph Convolutional Network," 2021 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)