

MO SHAN

Resume

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Education

- 2016–2021 **PhD, ECE**, *University of California, San Diego*, United States.
(Expected)
- 2010–2014 **Bachelor of Engineering, ECE**, *National University of Singapore*, Singapore.
First Class Honours, *GPA 4.84/5*
- 2013 **Student Exchange Program, ECE**, *University of Southampton*, United Kingdom.

Publications

Journals

- Z. Gao, **M. Shan**, Q. Li. (2015). Adaptive Sparse Representation for Analyzing Artistic Style of Paintings. *ACM Journal on Computing and Cultural Heritage*
- Z. Gao, Q. Li., R. Zhai, **M. Shan**, F. Lin. (2015). Adaptive and Robust Sparse Coding for Laser Range Data Denoising and Inpainting. *IEEE Transactions on Circuits and Systems for Video Technology*

Conferences

- **M. Shan**, Y. Bi, H. Qin, J. Li, Z. Gao, F. Lin and B. M. Chen. (2016). A brief survey of visual odometry for micro aerial vehicles, *Proceedings of the 42nd Annual Industrial Electronics Conference (IECON)*, Florence, Italy.
- J. Li, **M. Shan**, M. Lan, Y. Bi, H. Qin, F. Lin, B. M. Chen. (2016). Semi-dense motion segmentation for moving cameras by discrete energy minimization, *Proceedings of the 42nd Annual Industrial Electronics Conference (IECON)*, Florence, Italy.
- **M. Shan**, F. Lin and B. M. Chen. (2016). Salient object detection using UAVs, *Proceedings of the 2016 International Micro Air Vehicle Competition and Conference (IMAV)*, Beijing, China.
- J. Li, Y. ai Bi, M. Lan, H. Qin, **M. Shan**, F. Lin and B. M. Chen. (2016). Real-time simultaneous localization and mapping for UAV: A survey, *Proceedings of the 2016 International Micro Air Vehicle Competition and Conference (IMAV)*, Beijing, China.
- Y. Bi, J. Li, H. Qin, M. Lan, **M. Shan**, F. Lin and B. M. Chen. (2016). An MAV localization and mapping system based on dual realsense cameras, *Proceedings of the 2016 International Micro Air Vehicle Competition and Conference (IMAV)*, Beijing, China.

- H. Qin, **M. Shan**, F. Lin, Y. ai Bi, J. Li, M. Lan, Y. Zhang and B. M. Chen. (2016). A 3D rotating laser based navigation solution for micro aerial vehicles in dynamic environments, Proceedings of the 2016 International Micro Air Vehicle Competition and Conference (IMAV), Beijing, China.
- K. Wang, Y. Ke, **M. Shan**, X. Li, F. Wang and B. M. Chen. (2016). Development of autonomous quadrotor system for vertical replenishment, Proceedings of the 12th IEEE International Conference on Control and Automation (ICCA), Kathmandu, Nepal.
- Y. Bi, H. Qin, **M. Shan**, J. Li, W. Liu, M. Lan and Ben M. Chen. (2016) An autonomous quadrotor for indoor exploration with laser scanner and depth camera, Proceedings of the 12th IEEE International Conference on Control and Automation (ICCA), Kathmandu, Nepal.
- H. Qin, J. Q. Cui, J. Li, Y. Bi, M. Lan, **M. Shan**, W. Liu, K. Wang, F. Lin, Y. F. Zhang and B. M. Chen. (2016). Design and implementation of an unmanned aerial vehicle for autonomous firefighting missions, Proceedings of the 12th IEEE International Conference on Control and Automation (ICCA), Kathmandu, Nepal.
- X. Chen, S. K. Phang, **M. Shan** and B. M. Chen. (2016). System integration of a vision-guided UAV for autonomous landing on moving platform, Proceedings of the 12th IEEE International Conference on Control and Automation (ICCA), Kathmandu, Nepal.
- **M. Shan**, Fei Wang, Feng Lin, Zhi Gao, Ya Z. Tang, Ben M. Chen. (2015). Google Map Aided Visual Navigation for UAVs in GPS-denied Environment. In IEEE International Conference on Robotics and Biomimetics (ROBIO). Zhuhai, China.
- **M. Shan**, A. Charan. (2015). Google Map Referenced UAV Navigation via Simultaneous Feature Detection and Description. Poster paper. In IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS). Hamburg, Germany.
- Z. Gao, **M. Shan**, L. Cheong, Q. Li. (2014). Adaptive Sparse Coding for Painting Style Analysis. In Computer Vision-ACCV 2014. Springer Berlin Heidelberg.
- Z. Gao, **M. Shan**, W. Wong, Q. Li, P. He. (2013). Survey of the Key Techniques in Video Processing for Surveillance and a Pioneering Surveillance Network. In IET Conference Proceedings. The Institution of Engineering and Technology. London.
- Z. Gao, L. Cheong, **M. Shan**. (2012). Block-sparse rpca for consistent foreground detection. In Computer Vision-ECCV 2012 (pp. 690-703). Springer Berlin Heidelberg.

Awards

- 2016 **Multi-Year Dean's Fellowship and Jacobs Fellowship**, UCSD.
 - Most prestigious fellowship offered by ECE
- 2016 **SQ50 Multi-Drone Teaming Display 2016**, SINGAPORE.
 - Awarded by Chief Defence Scientist for dedication and commitment
 - Coordinated audio team and MC as media team Person in Charge

- 2015 **AVIC Cup – The 3rd International UAV Innovation Grand Prix**, CHINA.
 - Championship of rotary wing competition
 - Developed HOG based moving platform detection, automatic HSV threshold adjustment, circle detection and tracking
- 2015 **International Micro Air Vehicles Conference and Flight Competition**, GERMANY.
 - 2nd Prize Outdoor Competition
 - Developed aerial image stitching
 - Implemented circle detection, QR code reader
- 2015 **Singapore Amazing Flying Machine Competition**, SINGAPORE.
 - Category D Autonomous Championship Award 2nd Place
 - Developed concentric circle and landing pad detection
- 2010-2013 **Dean's List**, FACULTY OF ENGINEERING, NUS.
 - AY2010/2011 Semester 1 & 2
 - AY2011/2012 Semester 1
 - AY2012/2013 Semester 1

Computer Skills

Intermediate L^AT_EX, Linux, ROS, PCL, OpenMVG, PYTHON
 Advanced C, C++, MATLAB, OpenCV

Experience

Vocational

- 2014–2016 **Associate Scientist**, TEMASEK LABORATORIES, Singapore.
 - Project leader of *Laser-aided Stereo Vision Study*
 - Developer of visual odometry algorithms for Project *FRUITDOVE*