

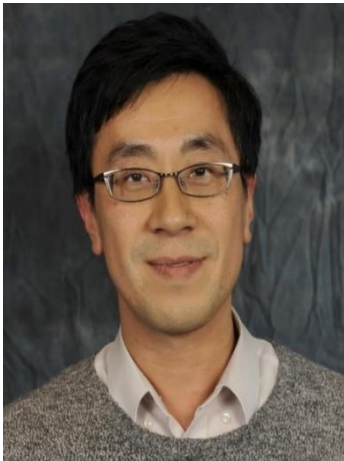
RGBD Image Processing for Autonomous Driving

Professor Henry Leung
Department of Electrical and Software Engineering
University of Calgary
Calgary, Alberta, Canada
Email: leungh@ucalgary.ca

Abstract

RGBD sensing has attracted increasing attention in computer vision and robotics. In this talk we present our works on image processing for RGBD data with application to autonomous. A visual SLAM system for motion tracking of vehicles will be described to assist autonomous driving in real environments including highways, residential, semi-urban and urban roads. The proposed approach uses motion prior to obtain accurate motion estimation in metric scale. We will also discuss about 3D object detection and tracking for obstacles avoidance, including approaches to enhance object detection in different environments. The proposed RGBD image processing techniques for SLAM, object detection and object tracking will be evaluated using publicly available benchmark datasets and experimental datasets we collected for practical driving scenarios.

Biography



Henry Leung is a professor of the Department of Electrical and Software Engineering of the University of Calgary. His current research interests include data analytic, information fusion, machine learning, signal and image processing, robotics and internet of things. He has published over 300 journal papers and 250 refereed conference papers. Dr. Leung has been the associate editor of various journals such as the IEEE Circuits and Systems Magazine, International Journal on Information Fusion, IEEE Trans. Aerospace and Electronic Systems, IEEE Signal Processing Letters, IEEE Trans. Circuits and Systems. He has also served as guest editors for the special issue “Intelligent Transportation Systems” for the International Journal on Information Fusion and “Cognitive Sensor Networks” for the IEEE Sensor Journal. He is the editor of the Springer book series on “Information Fusion and Data Science”. He is a Fellow of IEEE and SPIE.