Seminar Talk

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Title:
Large Size iron Plate Measurement using Monocular Vision Method

Abstract:
Machine vision techniques have been widely applied in many different fields. Vision measurement is one of its original applications. It means using computer or other embedded controllers and cameras to measure an object's size from its image. Generally, vision measurement techniques include monocular vision, binocular vision and multi-vision techniques. From general point of view, a 3D measurement problem cannot be solved by monocular vision method. However, in some cases, if we know some geometric features on the object and their relationship in advance, or it is a plane object, we can finish the task by using only one camera. In this presentation, I will introduce an iron plate size measurement system using monocular vision technique. It uses an updated two calibration planes camera model to correct the image of the plate from geometric distortion and lens distortion at the same time, and uses structured light to measure the thickness of the iron plate. After line features are detected, the length and width of the plate can be computed. This system has been applied to a production line of Shaogang Iron and Steel Corporation Limited in China.

Biography:
Dr. Chang Liu is an associate professor in School of Information Science and Engineering at Shenyang University of Technology, China. He joined Electrical and Computer Engineering of ODU as a visiting researcher in September 2014. He received his bachelor and master degrees in automatic control from Nankai University, China in 1992 and 1995 respectively. He received his doctoral degree in pattern recognition and intelligent system in Shenyang Institute of Automation, Chinese Academy of Sciences in 2012. From 1995 to 2000, he worked in China Construction Bank as a software engineer and then was transferred to Shenyang University of Technology. He is the lead developer of a physical examination management software which is used by many body examination centers in China. Since 2008 he was focused on computer vision techniques, especially on vision measurement techniques. Dr. Liu's current research interests include computer vision, software engineering and embedded system etc.