

Computational Intelligence in Machine Vision for Robotics, Automation and Mechatronics (MV-RAM)

by



Dr. Kok-Meng Lee

**Professor of the Woodruff School of Mechanical Engineering
Georgia Institute of Technology, Atlanta, GA
Editor-in Chief, IEEE/ASME Transactions on Mechatronics**

Date: Dec. 29, 2009 (Tuesday)

Time: 4:00pm - 5:00pm (Tea Reception at 3:30pm)

Venue: B6619, 6/F, Academic Building

ABSTRACT

Rapid advancement of computing, communication, and information technologies has drastically lowered the price of vision sensing systems, which have a broad spectrum of applications and impacted nearly all phases of our daily life. Computational intelligence has played an important role in this process. Today, modern smart sensors provide the features of a traditional machine vision system at a fraction of the usual price by eliminating the signal-conversion electronics, fixed-frame rates and limited gray-scale quantization. This talk discusses the past, present

and future of machine vision in view of the maturing robotics, automation and mechatronics technologies, specifically with focuses on computational intelligence for real-time applications. We begin with examining problems associated with traditional machine vision systems for cost-effective real-time applications, novel alternative system design and computational methods to overcome these problems, and the new trends ! of modern computational intelligent vision systems. Selected examples are given to help illustrate these impacts and yet to cover a wide variety of RAM applications.

BIOGRAPHY

Dr. Kok-Meng Lee received his M.S. and Ph.D. degrees in mechanical engineering from the Massachusetts Institute of Technology in 1982 and 1985, respectively. He has been with the Georgia Institute of Technology since 1985. As a Professor of mechanical engineering, his research interests include system dynamics and control, robotics, automation and optomechatronics. He holds eight U.S. patents. Dr. Lee is a Fellow of ASME and IEEE. He is currently the Editor-in-Chief of the IEEE/ASME Transactions of Mechatronics for which he served as an Editor from 1995 to 1999. He has held representative positions within the IEEE Robotics and Automation Society: he founded and chaired the Technical Committees on Manufacturing Automation (1996 to 1998) and on Prototyping for Robotics and Automation; and served as Chair or Co-Chair for numerous international conferences and on the AIM Conference Advisory Committee. His awards include Presidential Young Investigator (PYI) Award, Sigma Xi Junior Faculty Award, International Hall of Fame New Technology Award, and the Woodruff Faculty Fellow. He was also recognized as an advisor for seven Best Student Paper Awards and a Best Thesis Award.

Enquiry: 2788 8420

All are welcome!

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