Biography

Dr. D. J. Lee received his B.S. degree from National Taiwan University of Science and Technology in 1984 and his M.S. and Ph.D. degrees in electrical engineering from Texas Tech University in Lubbock, Texas in 1987 and 1990, respectively. He also received an MBA degree from Shenandoah University, Winchester, Virginia in 1999.

Dr. Lee is currently a professor in the Department of Electrical and Computer Engineering at Brigham Young University (http://www.ece.byu.edu/faculty/djlee) and the director of the Robotic Vision Laboratory (http://roboticvision.groups.et.byu.net/). He served in the machine vision industry as system designer, researcher, and technical and project manager for over eleven years before joining BYU in 2001. Companies and positions he held include, staff scientist at Innovision Corporation in Madison, Wisconsin from 1990 to 1995, senior system engineer at Texas Instruments in Dallas, Texas from 1995 to 1996, R&D manager and V.P. of R&D at AGRI-TECH from 1996 to 2000. His last employment prior to joining BYU faculty was with Robotic Vision System Inc. (RVSI) where he served as the Director of Vision Technology and was responsible of designing the state-of-the-art high-speed semiconductor wafer inspection systems.

Dr. Lee has designed and built over 40 real-time machine vision systems and products for automotive, pharmaceutical, semiconductor, agricultural, surveillance, and military applications, etc. His hands-on experience includes project costs and budget management, computer vision and image processing algorithms development, large-scale software system implementation, hardware design, and system integration. He founded CS Tech in 1995 and Smart Vision Works, LLC in 2006. He is a co-founder and president of Smart Vision Works International that was founded in 2012 for the design and manufacturing of custom-designed machine vision systems. His current research work focuses on high-performance embedded vision computing, real-time robotic and machine vision applications, and object detection and recognition.

Mobile Computer Vision

Designed and prepared for a short course taught at Sun Yat-Sen University

Cameras and sensors in mobile devices are improving with each new release of device. Computer vision applications for low-power, low-resource, and embedded systems and mobile devices are becoming increasingly prevalent. Computer vision captures images or video and understands and uses them for applications rely mainly on visual information. Examples range from detection and classification of faces, objects, and landmarks, to augmented reality, health and medical, autonomous vehicles, consumer electronics and toys, retail, and robotics industries. Some of the hottest mobile apps in recent years have had a strong computer vision component. With smartphones and tablets become part of business workflows, we can expect computer vision to be built into many future products.

The emphasis of mobile computer vision is in developing vision algorithms that run in real time on a mobile device. This short course surveys recent developments in computer vision and image processing for mobile applications. As part of this course, students will familiarize with a state-of-the-art mobile hardware and software development platform: an Nvidia Tegra-based robotic vision platform, with relevant libraries such as OpenCV. Many computer vision techniques such as shape description, segmentation, feature description and matching will be studied and implemented for mobile applications. Students will complete a final project that uses computer vision for a selected mobile application.