專 題 演 講

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題　目：Deep Learning for Visibility Restoration Approach

摘　要：

The visibility of outdoor images captured in inclement weather is often degraded due to the presence of haze, fog, sandstorms, and snowfall, so on. Poor visibility caused by atmospheric phenomena in turn causes failure in computer vision applications, such as outdoor object recognition systems, obstacle detection systems, video surveillance systems, and intelligent transportation systems. In order to solve this problem, visibility restoration techniques have been developed and play an important role in many computer vision applications that operate in various weather conditions.

In this talk, we will introduce two efficient atmospheric particle removal approaches: 1) rule-based haze removal approach, and 2) learning-based snow removal approach.

The rule-based atmospheric particle removal approaches are designed with strong assumptions regarding spatial frequency, trajectory, and translucency and the learning-based snow removal approaches are more complicated because they possess additional attributes of particle size and shape, and these attributes may vary within a single image.

簡　介:

Shih-Chia Huang is a Full Professor with the Department of Electronic Engineering at National Taipei University of Technology, Taiwan, and an International Adjunct Professor with the Faculty of Business and Information Technology at the University of Ontario Institute of Technology, Canada. He has been named a senior member of the Institute of Electrical and Electronic Engineers (IEEE). He is currently the Chair of the IEEE Taipei Section Broadcast Technology Society, and was a Review Panel Member of the Small Business Innovation Research (SBIR) program for the Department of Economic Development of Taipei City and New Taipei City, respectively.

Professor Huang has published more than 80 journal and conference papers and holds more than 60 patents in the United States, Europe, Taiwan, and China. Dr. Huang received B.S. and M.S. degrees from National Taiwan Normal University and National Chiao Tung University, respectively. In 2009, Dr. Huang received a doctorate degree in Electrical Engineering from National Taiwan University, Taiwan. He was presented with the Kwoh-Ting Li Young Researcher Award in 2011 by the Taipei Chapter of the Association for Computing Machinery, the 5th National Industrial Innovation Award in 2017 by the Ministry of Economic Affairs, Taiwan, as well as the Dr. Shechtman Young Researcher Award in 2012 by National Taipei University of Technology. Professor Huang was the recipient of an Outstanding Research

Award from National Taipei University of Technology in 2014 and the College of Electrical Engineering and Computer Science, National Taipei University of Technology in 2014-2016.

In addition, he has been an associate editor of the Journal of Artificial Intelligence and a guest editor of the Information Systems Frontiers and the International Journal of Web Services Research. He is also the Services and Applications Track Chair of the IEEE CloudCom 2016-2017 conference, the Applications Track Chair of the IEEE BigData Congress in 2015, General Chair of the 2015-2016 IEEE BigData Taipei Satellite Session, and the Deep learning, Ubiquitous and Toy Computing Minitrack Chair of the 2017-2018 Hawaii International Conference on System Sciences.

His research interests include intelligent multimedia systems, image processing and video coding, video surveillance systems, cloud computing and big data analytics, artificial intelligence, and mobile applications and systems.