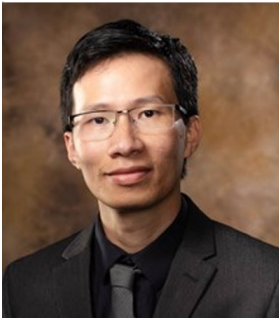


THE DEPARTMENT OF ELECTRICAL & COMPUTER ENGINEERING SPEAKER SERIES

PRESENTS

Title: Advanced Computer Vision and Deep Learning with Limited Data Approaches to Human Behavior Analysis and Scene Understanding in Open World



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Monday, October 10, 10:00 am Central Time
Virtual Zoom Meeting:

<https://zoom.us/j/9762699678?pwd=RUp5ZmN3cHUyQ1FvUExVQjVsc1hVUT09>

Meeting ID: 976 269 9678

Passcode: K91Bwy

LECTURE ABSTRACT

Abstract: Semantic scene understanding, human behavior understanding, and multi-camera multi-object tracking (MC-MOT) have become among the most fundamental research topics in computer vision and the key components in many real-world AI applications, i.e. self-driving cars, smart-home robots, precision agriculture, etc. Recently, deep learning-based approaches have achieved remarkable results in scene understanding, face recognition, facial expression recognition, action recognition and object tracking. A typical deep learning approach is usually trained on given datasets with labels. However, annotating images for the semantic segmentation, multi-camera multi-object tracking and other tasks is costly, time-consuming and highly biased. Deep network distillation, Self-supervised learning and Domain adaptation have been recently considered as the common approaches to overcome these limitations.

In this presentation, we will review our recent studies in computer vision and deep learning with limited data to tackle these problems in open world conditions. We will first review our recent methods that achieve competitive performance in scene understanding, action recognition and multi-camera object tracking. Then, we will introduce how these methods can be further improved so that they can be applied in limited training data conditions. The methods have been also experimented in various applications in high-resolution satellite images, visual landmark recognition and crowd counting. We will also review our recent findings in cross-view camera domain adaptation and their applications in drone videos and satellite images. This research trend is not only interested in human behavior and scene understanding from videos but also applicable in medical and healthcare applications.

SPEAKER BIOSKETCH

is currently an Assistant Professor and the Director of Computer Vision and Image Understanding (CVIU) Lab in Department of Computer Science and Computer Engineering at University of Arkansas, Fayetteville. He is also serving as an Associate Editor of IEEE Access Journal. He was the Research Project Director in Cylab Biometrics Center at Carnegie Mellon University (CMU). He has led to develop several successful AI applications, including AI-based Smart Insect Monitoring System, Age-invariant Face Recognition, Mutli-camera Multi-Object Tracking, Long-range Biometrics and Soft Biometrics Systems, Perception and Prediction solutions for robots.

He received his Ph.D degree in Computer Science at Concordia University, Montreal, Canada. His Ph.D. thesis was nominated for the Governor General Gold Medal in Canada. He also pursued (but not completed yet) another Ph.D degree in Electrical and Computer Engineering (ECE) at CMU in order to strengthen his background in signal processing. He received M.S. and B.S degrees in Computer Science from Concordia University and University of Natural Science in Vietnam respectively.

He is teaching Computer Vision, Image Processing, and Introduction to Artificial Intelligence courses in CSCE Department at University of Arkansas, Fayetteville. His research interests focus on various topics, including Biometrics, Object Tracking, Human Behavior Understanding, Scene Understanding, Domain Adaptation, Deep Generative Modeling, Compressed Sensing and Quantum Machine Learning. He has received six patents and two best paper awards and coauthored 140+ papers in conferences, technical reports, and journals.

He is a co-organizer and a chair of CVPR Annual Precognition Workshop in 2019, 2020, 2021, 2022; MICCAI Workshop in 2019, 2020 and ICCV Workshop in 2021. He is a PC member of AAAI'20, AAAI'21, AAAI'22 ICPRAI'20, ICPRAI'22 and a technical member of IJCAI-ECAI'22, ICPR'22. He is also a reviewer for numerous top-tier AI conferences and journals, such as CVPR, ICCV, ECCV, NeurIPS, ICLR, ICML, FG, BTAS, IEEE-TPAMI, IEEE-TIP, Journal of Pattern Recognition, Journal of Image and Vision Computing, Journal of Signal Processing, Journal of Intelligence Review, IEEE Access Trans., etc. He was a vice-chair of Montreal Chapter IEEE SMCS in Canada from September 2009 to March 2011.

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