DISTINGUISHED LECTURE SERIES

Privacy and Bias in Computer Vision

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Wednesday, May 28, 2025 10:00am
Auditorium106 at IIS new Building

Abstract

Advances in computer vision have enabled a wide range of real-world applications. For instance, human activity recognition is being used for elderly person monitoring, autonomous vehicles, sports analysis, etc. Similarity, Text-to-image diffusion models have achieved unprecedented proficiency in generating realistic images. Also, Visual-Language models are able to engage in impressive conversation. However, as these techniques are being used in the real world two important issues have emerged: privacy and bias. Most of these applications involve extensive computation, for which a user needs to share the data on the cloud computation server, where the user also ends up sharing private visual information like gender, skin color, clothing, background objects etc. Image generation models have an inherent tendency to memorize and replicate training data during inference that raises significant concerns, including potential copyright infringement and privacy risks. Therefore, there is a pressing need for solutions to preserve privacy. Beyond privacy protection, bias in computer vision can lead to unfair and incorrect decision making, and harmful societal prejudices, undermining the fairness and equity of computer vision. In this talk, I will present our recent work on Privacy Preservation and Bias Mitigation in Computer Vision.

Biography

Dr. Mubarak Shah, the UCF Trustee Chair Professor, is the founding director of Center for Research in Computer Visions at University of Central Florida (UCF). Dr. Shah is a fellow of ACM, IEEE, AAAS, NAI, IAPR, AAIA and SPIE. He has published extensively on topics related to human activity and action recognition, visual tracking, geo localization, visual crowd analysis, object detection and categorization, shape from shading, etc. He has served as an ACM and IEEE Distinguished Visitor Program speaker. He is a recipient of 2022 PAMI Mark Everingham Prize for pioneering human action recognition datasets; 2019 ACM SIGMM Technical Achievement award; 2020 ACM SIGMM Test of Time Honorable Mention Award for his paper "Visual attention detection in video sequences using spatiotemporal cues"; 2020 International Conference on Pattern Recognition (ICPR) Best Scientific Paper Award; an honorable mention for the ICCV 2005 Where Am I? Challenge Problem; 2013 NGA Best Research Poster Presentation; 2nd place in Grand Challenge at the ACM Multimedia 2013 conference; and runner up for the best paper award in ACM Multimedia Conference in 2005 and 2010. At UCF he has received Pegasus Professor Award; University Distinguished Research Award; Faculty Excellence in Mentoring Doctoral Students; Faculty Excellence in Mentoring Postdoctoral Scholarship of Teaching and Learning award; Teaching Incentive Program award; and Research Incentive Award.

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