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From YOLOv4 to YOLOv7

During 2018/1 – 2021/12, my research team conducted a research project with ELAN Electronics, a listed company in Hsinchu Science Park, on ``Smart City Traffic Flow Solutions'' case. To solve ELAN's expectation that the research team can calculate traffic parameters in real time at the edge (i.e., crossroads), so as to achieve the purpose of dynamically controlling traffic signs, my research team developed the world-famous real-time object detector – YOLOv4. From 2020 till now, various industries around the world, including medical systems, astronomy, biology, smart transportation, smart manufacturing and other fields, have adopted YOLOv4 to perform object detection in their respective fields. As of February 2023, the cumulative number of citations of YOLOv4 has exceeded 8,300 times. To continue maintaining the world's leading position and win glory for Taiwan, my research team released an advanced version of the object detection system – YOLOv7, in July 2022. In this talk, I will detail the development process of YOLOv4 and YOLOv7.

BIOGRAPHY

Mark Liao received his Ph.D. from Northwestern University, Evanston, Illinois, in 1990. He joined the Institute of Information Science, Academia Sinica, Taiwan in 1991. He received the Young Investigators' Award from Academia Sinica in 1998; the Distinguished Research Award from the National Science Council in 2003, 2010 and 2013; the Academia Sinica Investigator Award in 2010; the TECO Award from the TECO Foundation in 2016, and the 64th Academic Award from the Ministry of Education in 2020. His professional activities include: Editorial Board Member, IEEE Signal Processing Magazine (2010-13); Associate Editor, IEEE Transactions on Image Processing (2009-13), IEEE Transactions on Information Forensics and Security (2009-12), IEEE Transactions on Multimedia (1998-2001), ACM Computing Surveys (2018-2021). He is now a Senior Associate Editor of ACM Computing Surveys (2021-present). He has been a Fellow of the IEEE since 2013.