Lau Kin Wai, Steven

Mobile: (+852) 95409912 | Email: laukinwaisteven@gmail.com
Google Scholar: Link

ABOUT MYSELF

I received the B.E. degree in Information Engineering from City University of Hong Kong, in 2017. I am currently working at TCL AI Lab, as a research engineer and pursuing the PhD degree at the Department of Electrical Engineering, City University of Hong Kong. My research interests include self-supervised learning, audio and visual representation learning, model reparameterization and federated learning.

EXPERIENCE

TCL Corporate Research (HK) Co., Ltd | TCL AI LAB
Research Engineer, May 2021 to Present

- Conduct the cutting-edge research related to visual and audio representation learning, model reparameterization and federated learning.
- Design and develop on-device audio event detection algorithm for smart home robot with low power consumption and low latency.
- Collaborate closely with researchers from Microsoft Research Asia to develop a generalized anomaly detection backbone (e.g., using weakly supervised and self-supervised learning) for different production lines to lower down the labelling cost and reducing deployment time.

Algorithm Engineer, May 2019 to April 2021

- Design and develop image enhance algorithm for smartphone cameras, with focus on image super resolution and diffraction removal for under-display cameras
- Optimize the image super resolution algorithm on TCL smartphones, achieving results with 1 second processing time.
- Patent five cutting-edge image enhancement techniques related to image super-resolution and diffraction removal for under-display camera.

TFI Digital Media Limited, Hong Kong | Technology & Research Team
Software Engineer, August 2017 to April 2019

- Design and development of video content protection and video quality enhancement algorithm
- Patent one US patent related to the image quality assessment technique.

EDUCATION

City University of Hong Kong, Department of Electrical Engineering | January 2019 to End of 2024

- Part-time PhD in Electrical Engineering Department
- Advisor: Po Lai-Man

City University of Hong Kong, Department of Electronic Engineering | September 2014 to June 2017

- Major: BENG (Hons) in Information Engineering
- Awarded first class honours prize
- Awarded the Hong Kong Real Property Federation Scholarships in 2017 and Alco Holding Limited Scholarship in 2016
- Awarded Dean's List in 5 Semesters
- Gold Award in Information Product Design Competition in 2015/16

SELECTED PUBLICATION

[1] **K. W. Lau**, Y. A. U. Rehman, and L.-M. Po, "AudioRepInceptionNeXt: A lightweight single-stream architecture for efficient audio recognition," Neurocomputing, p. 127432, 2024.

[2] **K. W. Lau**, L.-M. Po, and Y. A. U. Rehman, "Large Separable Kernel Attention: Rethinking the large kernel attention design in CNN," Expert Systems with Applications, vol. 236, p. 121352, 2024.

[3] T. H. Chan, **K. W. Lau**, J. Shen, G. Yin, and L. Yu, “Adaptive uncertainty estimation via high-dimensional testing on latent representations,” Advances in Neural Information Processing Systems, vol. 36, 2024.

[3] Y. A. U. Rehman, **K. W. Lau**, Y. Xie, L. Ma, J. Shen, “Exploring Federated Self-Supervised Learning for General Purpose Audio Understanding,” IEEE International Conference on Acoustics, Speech, and Signal Processing, 2024 (Self-supervision in Audio, Speech and Beyond Workshop)

[4] Y. Xie, J. Wen, **K. W. Lau**, Y. A. U. Rehman, and J. Shen, “What should be equivariant in self-supervised learning,” in Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition, 2022, pp. 4111–4120.

COMPETITION AWARD

[1] 1ST Place in EPIC-Kitchens-100 2023 Challenges on EPIC-SOUNDS Audio-Based Interaction Recognition, CVPR 2023 Workshop. (Detailed report can be found on https://arxiv.org/abs/2307.07265)

[2] 4th Place in UDC 2020 Challenge on Image Restoration of Under-Display Camera, CVPR 2020 Workshop. (Detailed report can be found on https://arxiv.org/abs/2008.07742)

PANTENT

[1] Ho Chun Leung, **Kin Wai Lau**, Huan Miao, Jie Liu. A super-resolution algorithm based on multi-branch high-low frequency processing (图像处理方法、装置、电子设备及计算机可读存储介质). CN115880144A (2023)

[2] **Kin Wai Lau**, Lianping Xing, Yiqun Li, Dahai Yu. A reflection removal algorithm for under-display camera (一种图像处理方法、存储介质及终端设备). CN114387443A. (2022)

[3] Yiqun Li, Lianping Xing, **Kin Wai Lau**, Dahai Yu. A high dynamic range deep learning algorithm for under-display camera (一种图像处理方法、存储介质及终端设备). CN114331927A (2022)

[4] Lianping Xing, Yiqun Li, **Kin Wai Lau**, Dahai Yu. A multi-exposure fusion techniques for under-display camera. (一种图像处理方法、存储介质及终端设备). CN114283072A (2022)

[5] Cheng Pen, **Kin Wai Lau.** A multi-frame denoising and super-resolution algorithm for smartphone camera. (一种图像处理方法及装置) CN113518243A (2021)

[6] Lai Man Po, LIU Mengyang, Yiu Fai Yuen, LI Yuming, Xuyuan Xu, Chang Zhou, Hon Wah Wong, **Kin Wai Lau,** Hon Tung Luk, Hok Kwan Cheung. Patch selection for neural network based no-reference image quality assessment. US20190362484A1 (2019)

REVIEWER

CVPR, Expert Systems with Applications, ICIP

SKILLS / CERTIFICATIONS

Technical: PyTorch, Tensorflow, Keras, Python
Spoken Language: English, Cantonese, Mandarin