

Employment

- Research Scientist**, TCL AI Lab Hong Kong, HKSAR, China April 2020 - Present
Working on computer vision and machine learning for video understanding
- Algorithm Specialist**, TCL Research Hong Kong, HKSAR, China Oct 2019 – Mar 2020
Research and development of TCL deep learning inference platform
- Lab Engineer**, City University of Science and Information Technology, Pakistan, May 2013 – Aug 2016
Conduct laboratory classes in Control Systems
- Visiting Lecturer**, City University of Science and Information Technology, Pakistan Dec 2012 – Mar 2016
Taught Programming with MATLAB
- Teaching Assistant**, City University of Science and Information Technology, Pakistan Oct 2012 – April 2013
Assisted professors in the preparation of checking quizzes and assignments

Education

- Ph.D.Electrical Engineering**, City University of Hong Kong, HKSAR, China Sep 2016 – Aug 2019
Advisor: Po Lai-Man
Thesis Title: Face Anti-Spoofing using Convolutional Neural Networks
- M.S.Electrical Engineering**, NUCES-Peshawar, Pakistan Aug 2013 – July 2015
Advisor: Muhammad Tariq
Thesis Title: Object Tracking and Image Transmission in Wireless Multimedia Sensor Networks
- B.Sc.Electrical Engineering**, CUSIT-Peshawar, Pakistan, Sep 2008 – Sep 2012
Advisor: Adam Khan
Thesis Title: Intelligent Traffic Control System

Technical Skills

Python, PyTorch, TensorFlow, Keras, MATLAB, Vim, ONNX, Anaconda, Linux

Research Interest

- Computer Vision, Deep Learning, Machine Learning with applications to video and image analyses
- Design and Analyses of Convolutional Neural Networks (CNN) for Biometric Anti-spoofing Applications
- Energy-efficient object detection and localization in Wireless Multimedia Sensor Networks (WMSN) using the image and video analyses

Awards

- Research Tuition Scholarship 2018-2019
- Outstanding Academic Performance Award 2018
- Full-time PhD Studentship by HKSAR Government 2016-2019
- Active Student Residence Award 2018
- Bronze Medal in M.Sc Electrical Engineering 2015
- Gold Medal in B.Sc. Electrical Engineering 2012
- National ICT RD Funds 2011-2012

Publications

Peer-reviewed Journal Articles

- Y. A. U. Rehman, L. M. Po, and M. Liu, “Livenet: Improving features generalization for face liveness detection using convolution neural networks,” *Expert Systems with Applications*, vol. 108, pp. 159–169, 2018.
- Y. A. U. Rehman, M. Tariq, and T. Sato, “A novel energy efficient object detection and image transmission approach for wireless multimedia sensor networks,” *IEEE sensors journal*, vol. 16, no. 15, pp. 5942–5949, 2016.
- Y. Zhao, L.-M. Po, K.-W. Cheung, W.-Y. Yu, and Y. A. U. Rehman, “Scgan: Saliency map-guided colorization with generative adversarial network,” *IEEE Transactions on Circuits and Systems for Video Technology*, 2020.
- Y. A. U. Rehman, L.-M. Po, and M. Liu, “Slnet: Stereo face liveness detection via dynamic disparity-maps and convolutional neural network,” *Expert Systems with Applications*, vol. 142, p. 113 002, 2020.
- Y. Zhang, L. M. Po, M. Liu, Y. A. U. Rehman, W. Ou, and Y. Zhao, “Data-level information enhancement: Motion-patch-based siamese convolutional neural networks for human activity recognition in videos,” *Expert Systems with Applications*, vol. 147, p. 113 203, 2020.
- W.-F. Ou, L.-M. Po, C. Zhou, Y. A. U. Rehman, P.-F. Xian, and Y.-J. Zhang, “Fusion loss and inter-class data augmentation for deep finger vein feature learning,” *Expert Systems with Applications*, vol. 171, p. 114 584, 2021.
- M. Liu, H. Fu, Y. Wei, Y. A. U. Rehman, L.-m. Po, and W. L. Lo, “Light field-based face liveness detection with convolutional neural networks,” *Journal of Electronic Imaging*, vol. 28, no. 1, p. 013 003, 2019.
- M. Liu, L.-M. Po, Y. A. U. Rehman, X. Xu, Y. Li, and L. Feng, “Video copy detection by conducting fast searching of inverted files,” *Multimedia Tools and Applications*, vol. 78, no. 8, pp. 10 601–10 624, 2019.
- Y. Zhang, L.-M. Po, J. Xiong, Y. A. U. Rehman, and K.-W. Cheung, “Asnet: Auto-augmented siamese neural network for action recognition,” *Sensors*, vol. 21, no. 14, p. 4720, 2021.
- J. Xiong, L.-M. Po, K. W. Cheung, *et al.*, “Edge-sensitive left ventricle segmentation using deep reinforcement learning,” *Sensors*, vol. 21, no. 7, p. 2375, 2021.
- Y. Zhao, L.-M. Po, W.-Y. Yu, *et al.*, “Vcgan: Video colorization with hybrid generative adversarial network,” *arXiv preprint arXiv:2104.12357*, 2021.
- Y. A. Ur Rehman, M. Tariq, and O. U. Khan, “Improved object localization using accurate distance estimation in wireless multimedia sensor networks,” *PloS one*, vol. 10, no. 11, e0141558, 2015.
- Y. A. U. Rehman, L.-M. Po, and J. Komulainen, “Enhancing deep discriminative feature maps via perturbation for face presentation attack detection,” *Image and Vision Computing*, vol. 94, p. 103 858, 2020.

Peer-reviewed Conference Proceedings

- Y. A. U. Rehman, L. M. Po, and M. Liu, “Deep learning for face anti-spoofing: An end-to-end approach,” in *2017 Signal Processing: Algorithms, Architectures, Arrangements, and Applications (SPA)*, IEEE, 2017, pp. 195–200.
- Y. A. UrRehman, A. Khan, and M. Tariq, “Modeling, design and analysis of intelligent traffic control system based on integrated statistical image processing techniques,” in *2015 12th International Bhurban Conference on Applied Sciences and Technology (IBCAST)*, IEEE, 2015, pp. 169–174.
- Y. A. U. Rehman, L.-M. Po, M. Liu, Z. Zou, and W. Ou, “Perturbing convolutional feature maps with histogram of oriented gradients for face liveness detection,” in *International Joint Conference: 12th International Conference on Computational Intelligence in Security for Information Systems (CISIS 2019) and 10th International Conference on European Transnational Education (ICEUTE 2019)*, Springer, 2019, pp. 3–13.
- M. Liu, L.-m. Po, Y. A. U. Rehman, X. Xu, Y. Li, and L. Feng, “A novel inverted index file based searching strategy for video copy detection,” in *2017 Signal Processing: Algorithms, Architectures, Arrangements, and Applications (SPA)*, IEEE, 2017, pp. 307–312.

- Y. Zhou, M. Kwan, K. Tolentino, *et al.*, “Udc 2020 challenge on image restoration of under-display camera: Methods and results,” in *European Conference on Computer Vision*, Springer, 2020, pp. 337–351.

PhD-Thesis

- Y. A. U. Rehman, “Face anti-spoofing using convolutional neural networks,” City University of Hong Kong, 2019.

Projects

Video Understanding for Smart Homes	2019-current
Location: AI Lab, TCL Research Hong Kong, KSAR, China	
Deep Learning for Image Understanding in Mobile Applications	2019-2021
Location: TCL Research Hong Kong, KSAR, China	
Face Presentation Attack Detection	2016-2019
Location: City University of Hong Kong , HKSAR, China	
Object Detection and Localization in Multimedia Sensor Networks	2013-2015
Location: NUCES-Peshawar, Pakistan	

Reviewer

- IEEE Access
- Elsevier Expert Systems with Applications
- KSII Transactions on Internet and Information Systems
- Elsevier Journal of Visual Communication and Image Representation
- IEEE Transactions on Circuits and Systems for Video Technology
- Elsevier Signal Processing and Image Communication

Languages

- ENGLISH
- URDU
- PASHTU
- MANDARIN (Beginner)