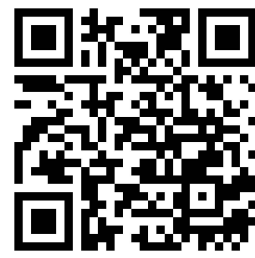


# Cross Domain Pattern Recognition with Deep Neural Nets

Date: 4 October 2023 (Wednesday)

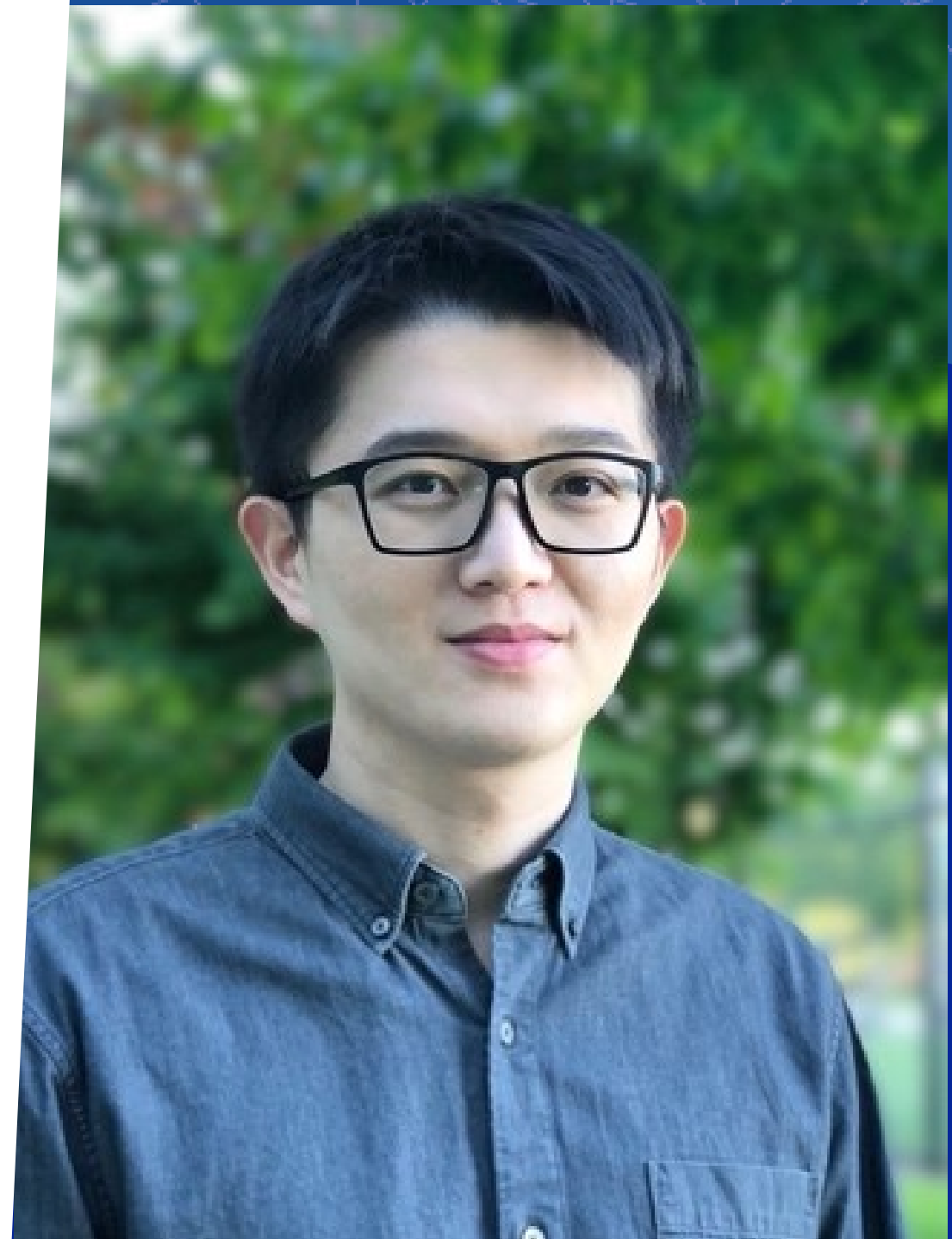
Time: 10:00am - 11:00am



Seminar link: <https://cityu.zoom.us/j/98876065770>

## ABSTRACT

One of the fundamental challenges in applying trained supervised learning models to real-world scenarios is that the discriminative features in the training data (source domain) and the testing data (target domain) are not the same. For example, the machines used for collecting training data could be completely different from those of actual application platforms. Simply applying the model trained on the source domain to the target domain will significantly degrade its performance. To address this issue, traditional approaches require collecting labeled signals in the target domain for retraining, but it is arduous and expensive. Therefore, there is a strong demand to design a generalized learner that can adapt such domain variances, which allows the data distributions from the different but related data domains to have heterogeneous features with different dimensionalities. This talk will present cross-domain fault diagnosis approaches that mitigate the variances between the different data domains, including scenarios involving cross-platform and Sim2Real transitions. The proposed works can effectively classify target domain samples without requiring manual relabeling. Additionally, this talk will showcase domain adaptation models that are capable of transferring knowledge in high-dimensional signal tasks, including multi-channel human activities and computer vision.



## Dr Jiahong CHEN

### GUEST SPEAKER'S PROFILE

Dr Jiahong Chen is a Research Scientist at Amazon, focusing on machine learning, pattern recognition and their real-world applications. Before joining Amazon, he was a Postdoctoral Research Fellow with the Department of Mechanical Engineering, the University of British Columbia (UBC). He received his Ph.D. in mechanical engineering from the UBC in 2019, where he was advised by Professor Clarence de Silva. His research work has primarily been focused on smart manufacturing, pattern recognition, machine learning, and robotics. He has published over 15 papers in peer-reviewed venues, including IEEE Transactions on Cybernetics, Pattern Recognition, and IEEE/ASME Transactions on Mechatronics.