統計科學研究所
INSTITUTE OF STATISTICAL SCIENCE

統計所博士後演講　中研院統計所

博 士 後 演 講

講　　題：Multidisciplinary Research: Insights into Deep Learning in Sequencing and Computer Vision

演講人：Dr. Yang-Ming Yeh (葉陽明 博士後研究學者) (中央研究院統計科學研究所)

時　　間：2023年11月1日(星期三)，11:00-12:00

地　　點：中央研究院統計科學研究所 B1F 演講廳

Abstract

In this decade, the importance of deep learning has grown rapidly. In this presentation, I will provide a brief overview of two of my deep learning publications.

The first paper introduces a neural network (NN) architecture designed to improve the basecalling of third-generation sequences from Oxford Nanopore Technologies (ONT). Third-generation sequencing has the advantage of rapidly generating long nucleotide read data with high throughput. However, the read accuracy is significantly limited because the process of decoding raw electrical current data to sequence is heavily influenced by noise. In this work, we leverage the benefits of convolutional and recurrent layers to better identify both short- and long-range signal dependencies. Extensive experiments validate that the proposed MSRCall model outperforms other basecallers in terms of both read and consensus accuracies.

The second paper presents a novel convolutional neural network (CNN) layer that can enhance visual object recognition. Drawing from the experience of the part-based method, a traditional machine learning algorithm, we introduce a new CNN layer called the co-occurrence layer. This layer can detect discriminative object parts without requiring additional annotations or parameters. By integrating this layer into existing CNN models, we achieve a state-of-the-art recognition rate on the CUB200-2011 benchmark.

※ 茶　會：15：00開始　　　　　　※ 實體與線上視訊同步進行。