**ConvNeXt-backbone HoVerNet for Nuclei Segmentation and Classification**

The algorithm used to take part in CoNIC Challenge 2022 is briefly described in this publication [1]. Following its methodology, we replace the ResNet baseline with the ConvNeXt baseline after the baseline became available. Additionally, we suggest first converting RGB space to Haematoxylin-EosinDAB(HED) space and then using the origin image's haematoxylin composition to smooth out one hot label's semantics. The best fold split for the training model is then chosen before the final test phase submission by looking at the nucleus distribution of the train and valid sets.

Results on the validation set demonstrate that HoVerNet with ConvNeXt-tiny backbone still improves the mPQ+ by 0.04 and multi r2 by 0.0144 even with fewer channels at each stage.

Index Terms: Label smoothing, deep, haematoxylin-Eosin-DAB decomposition, nuclear segmentation, nuclear categorization.

Deep neural networks have made significant advancements during the past few decades. Deep learning assists areas in Automatic approaches in segmentation jobs can quickly and simply gather data of interest in a matter of seconds or minutes. As a result, many deep learning-assisted methods for medical picture analysis are emerging.

For the investigation of malignant tissue in computational pathology, as well as for subsequent tasks like cancer screening, cancer grading, and cancer type prediction, nuclei segmentation is crucial.

However, there are thousands of nuclei present in an entire slide image. The nuclei of different types vary between and within instances not only in size and form but also in environment, scanning setup (devices and lighting), and Haematoxylin and Eosin (H&E) stained impact. Therefore, it is unrealistic for professionals to manually.

HoVerNet is employed as a starting point. ConvNeXt also modifies the foundation of feature extraction, somewhat enhancing model performance. Experiments demonstrate that even with each stage's channel being significantly lower in size, the convnext backbone still enhances model performance, demonstrating the existence of channel dimension redundancy.

As a result, we'll provide search functionality to the architecture channels in the future. Utilize a neural architecture search technique to simultaneously optimise performance and throughput, making deployment on edge devices more practical.