# Video Classification with Convolutional Neural Networks

Learning and understanding multimedia content is a challenging task in the research field of information retrieval and multimedia analysis. *Deep Learning* (DL), as a new area of machine learning (*since 2006*), has already been impacting a wide range of multimedia information processing. Recently, the techniques developed based on DL achieved substantial progress in fields including Speech Recognition, Image Classification and Language Processing. It has been proved that through simulating human neural network and hierarchically learning features from large scale data can significantly improve analytic results.
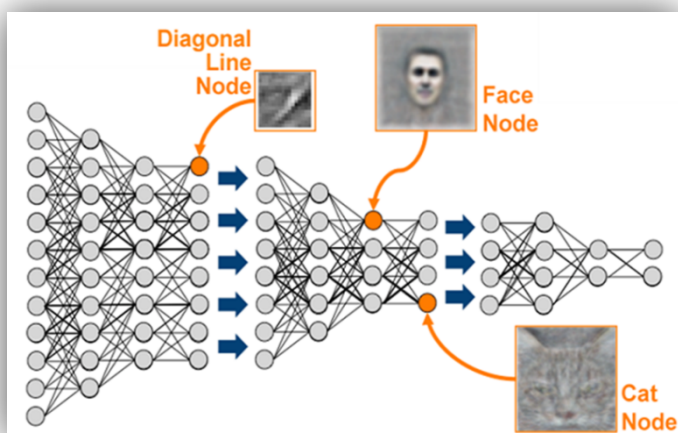
Visual Concept Detection relies on *image classification*. In this research area, the most state-of-the-art technique was achieved by DL due to traditional techniques are weak in feature extraction and large scale classifier training.

The most impacted feature of DL based method is that it applies unsupervised learning intended to learn features deeply and hierarchically (layer-by-layer) from input data for discovering concept from video or image.

In this master project, a new approach for video classification will be developed based on state-of-the-art DL platform. The method is intended to recognize genres/activities from video frames automatically. The further video classification would be done based on created temporal information. Since the training process of a DL framework is extreme expensive concerning running time and system costs. The training process would be deployed on a GPU workstation. The system accuracy and performance will be evaluated by using opened benchmark.

Required:
- Strong interests in image processing, machine learning, computer vision
- Programming in C/C++
- Experience with OpenCV and machine learning applications as a plus

Expected Results:
- Fast and feasible algorithms
- Running applications for video classification
- Convincing evaluation results by using opened benchmark

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