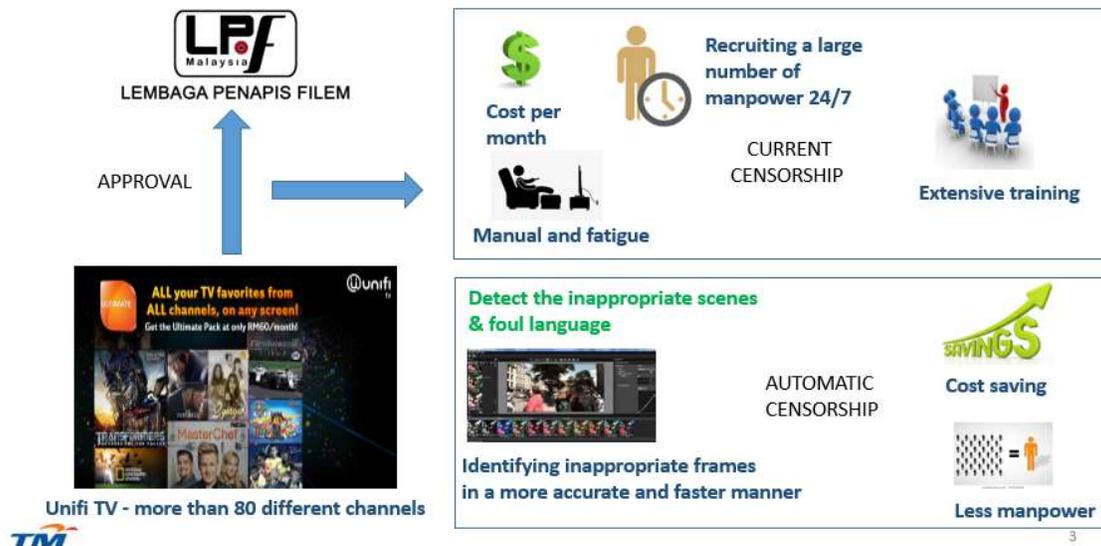


**Project Title:** Automated Detection of Visual and Speech Contents for Film Censorship using Deep Learning

**Source of Funding:** TMR&D

**Project Duration:** 2 Years (3 Dec 2018 – 30 Nov 2020)

**Project Description:**



All local and foreign films should obtain suitability approval before distribution or public viewing (Ministry of Home Affairs – Security Collective Responsibility). TM Unifi TV provides more than 80 different channels to its subscribers, and the process of screening visual contents of all these channels involves recruiting a large number of manpower 24/7, and thus imposes a huge censorship cost per month subject to the screening period or film length. All the recruited personnel should participate into an extensive training to ensure the fulfilment of filtering standards according to the defined guidelines. Besides, the performance of human visual system drops due to continues staring at the screen for a long time, and its speed is bounded to duration of the film varying from individual to individual.

Therefore, a more efficient solution for TM Unifi TV would be to implement an automated censorship system to identify and detect the inappropriate scenes and foul language in the provided TV channels before public viewing. As a start, the focus will be on the off-line content. Recently, all aspects of visual recognition (detection, localization, classification, etc.) are significantly enhanced after emergence of Deep Learning techniques. Convolutional Neural Networks (CNN) and Recurrent Neural Network (RNN) are a powerful branches of Deep Learning techniques which are designed to automatically identify and detect the patterns in the visual contents as well as speech, and have outperformed the human accuracy and speed in many detection tasks. Hence, it is proposed to employ a new architectural design for a CNN and an RNN model to detect the nudity scene and offensive/foul language in videos.



# Call for Research Scholar

## Research Scholar 1

**Monthly Salary:** RM2500 (To pursue Masters full time) (depending upon candidate's experience).

**Main Task:** Data collection, algorithm development and simulation for audio censorship.

**Main Requirement:** Bachelor's degree with honours in Electrical Engineering discipline, preferably 2nd class or above.

## Research Scholar 2

**Monthly Salary:** RM3000 (To pursue PhD full time) (depending upon candidate's experience).

**Main Task:** Data collection, algorithm development and simulation for video censorship.

**Main Requirement:** Master's degree with honours in Electrical Engineering discipline, preferably 2nd class or above.

**Location:** Faculty of Engineering, MMU Cyberjaya

## Benefits of the project (not limited to):

-Attending local conference(s) based on oneself effort in publication.

## Responsibilities:

- To evaluate public nudity scene video dataset and prepare offensive /foul language data set.
- To implement and evaluate existing techniques on public data set and newly created offensive audio dataset. To do testing on video/audio data provided by UNIFI TV.
- To perform coding using Python.
- To develop, train and evaluate CNN for nudity scene detection in video stream.
- To develop, train and evaluate RNN to detect foul languages in video.
- To do any relevant administrative work/purchasing matters as requested.
- Research and publication work.

## Other Requirements:

- Good knowledge of image and video processing.
- Good English proficiency.
- Self-motivated, requires minimal supervision, resourceful, keen to learn, possess good communication skills and able to work under pressure.
- The candidate ideally should be proficient in **Python** scientific programming. This project uses the deep learning technology for video and audio classification. Therefore, candidate that have completed the course Practical Deep Learning For Coders, Part 1 at <http://course.fast.ai/> will have an added advantage.
- Deep learning knowledge will mainly be evaluated based on previous completed projects. Sample project using tools provided by fast.ai can be found at this link [https://www0.comp.nus.edu.sg/~kanmy/courses/6101\\_2017\\_2/](https://www0.comp.nus.edu.sg/~kanmy/courses/6101_2017_2/)
- Some of the desired skill include deep neural network implementation using Pytorch.

Interested applicants are requested to submit their resumes through email to Associate Professor Dr. Hezerul Abdul Karim ([hezerul@mmu.edu.my](mailto:hezerul@mmu.edu.my)).