Project Title: Using AI modelling for Motion Detection (2 – 3 students)
Company: HKU SAAS Data Science Laboratory
Supervisor: Dr Adela Lau

Project objectives
This project aims to develop an AI library for motion detection and deploy it in an AI chip for HKU SAAS Data Science Lab.

(1) Collect images and take videos for a set of motions.
(2) Develop a deep learning model for motion detection
(3) Deploy the deep learning model into the Caffe framework and program it into an AI chip
(4) Implement a web application with the developed model for demonstration.

Duties
- Collect and pre-process the image and video data.
- Design and implement AI models for motion detection.
- Program the AI models into an AI chip using Caffe framework.
- Develop the apps.

Students' Learning experience:
- Learn new technologies in AI and different types of open source software for AI modelling.
- Have hands-on practical experience in designing an AI model and deploying it into an AI chip.
- Learn the industrial standard in AI, innovation, communication skills, and mind set.
- Have an AI/data science internship experience to gain your market competitiveness.

Knowledge Requirement:
➢ Good in programming (e.g. Python or others).
➢ Good in mathematics and logical thinking.
➢ Willing to learn new technologies, a risk taker, a quick learner, and an inventor.
➢ Hard work and smart work.
➢ Some experience in using machine learning libraries such as Tensorflow, Keras, Scikit-learn, etc, is preferred but not necessary.
➢ Taken some basic deep learning neural network ,and data mining courses are preferred, but not necessary.

1. When the device can detect a person is sleeping
2. When the device can detect a person waking up
3. When the device can detect a person falling down
4. When the device can detect a baby walking around
5. When the device can detect a person walking in/out an entrance,
6. When the device can detect day/night/raining/cloudy through the window
7. When the device can detect a smoke(fire) condition
8. When the device can detect a water flooding inside the house