FRA 321
Basic Image Processing and Artificial Intelligence

1/2566

Aj. So, Aj. Blink, and Aj. Por

suriya.nat@kmutt.ac.th
bawornsak.sak@kmutt.ac.th
paisit.kha@kmutt.ac.th

Course Objectives

To get you to familiarize with basic knowledge for robot's eyes and brain - Image Processing, and Artificial Intelligence

This course will NOT cover the materials in detail.

This course WILL give you basic knowledges just enough for you to not be fooled by others.

How the game is played . . .

3 Game Masters

- Aj. So, Aj. Blink, and Aj. Por

3 Quests to complete

- Each Aj will hold 33.33 points of this class. To pass this class, you must clear the minimum requirements of each Aj.
- Think of it as 3 mini-courses

Game 1: Basic Image Processing by Aj. So

Topics included:

- Introduction to Image Processing
- Digital Image Fundamentals
- Image Enhancement
- Spatial Image Filtering
- Morphological Operations
- Camera Calibration
- Color Models
- Coordinate Transformation
- Edge Detection

Videos are here:

https://learn.thairobotics.org/courses/image-processing/

Game 1: Basic Image Processing by Aj. So

Assessment: Quiz / Task

- Each part of topic has quiz and task
- Each of you needs to do quiz and task individually.

Assessment: Exams

- Exam date will be announced later.
- Each of you needs to study the material and takes the exam individually.

Game 2: Basic Artificial Intelligence by Aj. Blink

Topics included:

- AI Definition
- State Space
- Path Planning
- Uninformed Search
- Informed Search
- [Advanced topics] Other AI Search

Game 2: Basic Artificial Intelligence by Aj. Blink

Aj.Blink will hold a live session twice this semester. Each session will cover all the materials.

If you do not want to attend live sessions, you can watch the videos (but it's last year's videos)

More info in: https://github.com/BawornsakS/FRA321_AI_Part

Assessment: Paper Exam Session [Thrice throughout the semester. Retake is possible. Only highest scores are counted toward the final grade.]

Game 3: Basic Machine Learning by Aj. Por

Topics included:

- Introduction to Machine learning and Rapidminer
- Linear regression and Rapidminer
- Logistic regression and Rapidminer
- Decision tree and Rapidminer
- K-NN and Rapidminer
- K-mean clustering and Rapidminer
- Neural network and Rapidminer

Videos are here:

https://mailkmuttacth-my.sharepoint.com/:f:/g/personal/paisit_kha_kmutt_ac_th/Em29LnVhyXVHs2EauNBJ30UByJ-S60jOPMCyvj5yMHbttQ?e=Ytox0k

Game 3: Basic Machine Learning by Aj. Por

Assessment: Oral Exam and project presentation

- Get together in groups of three.
- Select at least one dataset from rapidminer or external sources and analyze the dataset through rapidminer (the dataset must not be the same as Aj. Por teaches in video clips).
- Select two machine learning models to analyze.

Course Syllabus:
https://docs.google.com/document/d/1I43JBj4KPOrGy18J1zrGnaqP20xsAY7g5GrkSvSacG8/edit?usp=sharing