List of Dissertation Titles for Master of Computer Science (Applied Computing)

Supervisor name:	**Dr. Zati Hakim Azizul Hasan (zati@um.edu.my)**
Research Area:	Cognitive robotics
Research Title:	<Tentative> cognitive strategies for robot navigation
Brief description:	Cognitive strategies are gaining popularity in robotic implementations. One area that greatly benefit is autonomous navigation. Student working under this topic will be guided to work on the robotic platform (technical) and work closely with the supervisor on the cognitive strategies to be developed. Good programming skills (any language) is required. Good understanding of techniques in computer vision is a bonus. If interested, please write to zati@um.edu.my for discussion.

Supervisor name:	**Dr. Zati Hakim Azizul Hasan (zati@um.edu.my)**
Research Area:	Tool for autistic assessment
Research Title:	<Tentative> pervasive tool for arm flapping assessment
Brief description:	Pervasive tools are gaining popularity in clinical assessment. One area that would greatly benefit is autistic arm flapping assessment. Student working under this topic will be guided to extend the algorithm done by prior student (under same supervision) onto pervasive platform. Good programming skills (any language) is required. Good understanding of techniques in computer vision is a bonus. If interested, please write to zati@um.edu.my for discussion.

Supervisor name:	**Mrs. Nornazlita Hussin (nazlita@um.edu.my)**
Research Area:	Augmented Reality
Research Title:	Augmented Advertising as an Effective Tool to Market Products/Services
Brief description:	To study how AR can help in advertising products/services.

Supervisor name:	**Mrs. Nornazlita Hussin (nazlita@um.edu.my)**
Research Area:	Multimedia
Research Title:	Personalized Content for Targeted Group in Public Places
Brief description:	To personalize content of advertisements based on targeted group in public places.

List of Dissertation Titles for Master of Computer Science (Applied Computing)

Supervisor name: **Mrs. Nornazlita Hussin (nazlita@um.edu.my)**

Research Area: Augmented Reality

Research Title: Indoor Augmented Reality Navigation

Brief description: To investigate how AR can evaluate different AR visualization methods to guide a person to a destination indoor.

Supervisor name: **Assoc. Prof. Dr. Hamid Abdullah Jalab Altulea (hamidjalab@um.edu.my)**

Research Area: Image processing

Research Title: Image Forgery Detection Based on Clustering Technique

Brief description: Today manipulation of digital images has become easy due to powerful computers, advanced photo-editing software packages and high resolution capturing devices. Image forgery is considered as one of the most basic image manipulation methods in digital images. This process is done by copying part of the image and then inserting it into the same image or into different image. The authenticity of image therefore is important and has challenged the researchers and scientists in fields related to image processing. Image forgery is divided into three categories:

            1- Copy-move,

            2- image splicing

            3- Image retouching

These kinds of forgery are used to cover an object or scene by way of copying the area of the image and pasting it on another location of the same image. Proving an image whether it is real or not is very complicated, thus some efficient techniques need to be used.

Supervisor name: **Dr. Nor Liyana Mohd Shuib (liyanashuib@um.edu.my)**

Research Area: Big Data

Research Title: Big Data Framework for Health Care

Brief description: Big data can provide important insight for health care domain. Hence, this research aims to develop a big data framework. The research questions are:
1) What is the component needed in the framework?
2) How can the framework be developed? The study starts with information requirement activities to identify what components needed in the framework. Based on the data collection, the framework will be developed.

Supervisor name: **Dr. Erma Rahayu Mohd Faizal Abdullah (erma@um.edu.my)**

Research Area: Computer vision and NLP

List of Dissertation Titles for Master of Computer Science (Applied Computing)

Research Title:
Automatic Detection and Translation of Text from Billboard in English to Malay and Vice Versa

Brief description:
In this research, student will need to do detection of the words from billboard that can be found anywhere along the road in Malaysia and translate the word into English or Malay depending on the language use in the advertisement. The system needs to be able to detect the words in any type of font.

Supervisor name: **Dr. Erma Rahayu Mohd Faizal Abdullah (erma@um.edu.my)**

Research Area: Computer vision, multimedia and NLP

Research Title:
Improving Learning Skill for Dyslexia Children Using Augmented Reality System

Brief description:
In this research, student will need to identify the downside of dyslexia children in their ability to read. Student needs to develop an augmented reality system on teaching the children to recognize words and phonics. Assessment on their reading skills after using the system is necessary.

Supervisor name: **Dr. Erma Rahayu Mohd Faizal Abdullah (erma@um.edu.my)**

Research Area: Computer vision

Research Title:
Kelulut Honey Identification and Classification based on Chemical Content Produced by Different Species of Stingless Bees

Brief description:
One species of the bees can produce different range of taste due to variety trees in the farm. The nutritional value for every stingless bees' honey are the same. However, the quality is determined by the nectar collected by the bees. Therefore, this study is carried out to determine the nectar source of the honey produced.

Supervisor name: **Dr. Unaizah Obaidellah (unaizah@um.edu.my)**

Research Area: Human cognitive behaviour assessment, computer education

Research Title: Cognitive behavioural studies in computer programming education

Brief description:
The proposed work investigates factors (i.e. problem solving, decision making) affecting student's difficulties in computer programming education and provide solutions for the identified problems. Methods of assessments covers human behavioral aspects. Other related topics are available upon discussion.

List of Dissertation Titles for Master of Computer Science (Applied Computing)

Supervisor name: **Dr. Unaizah Obaidellah (unaizah@um.edu.my)**

Research Area: Human cognitive behaviour assessment, Big Data, Data Mining

Research Title: Factors and methods for affective and adaptive learning

Brief description: The proposed work investigates factors and method to promote affective learning that personalizes learning according to an individual's needs.

Supervisor name: **Dr. Unaizah Obaidellah (unaizah@um.edu.my)**

Research Area: Human cognitive behaviour assessment, special needs education

Research Title: Redesigning instructions for special needs children

Brief description: The proposed work evaluates methods and strategies to best provide instructions for learning and communication for special needs students.

Supervisor name: **Assoc. Prof. Dr. Sri Devi (sdevi@um.edu.my)**

Research Title: Deep learning for large-scale pathology image analysis

Brief Description: The project aims to demonstrate the efficiency of computer-aided diagnosis of pathology samples. The aim is to develop new AI tools which advance identification of biomarkers related to chemotherapy response and disease surveillance. Some of the reporting may involve automation, as well as improved diagnostics in a number of cancer sites, particularly prostate and breast cancer.

Tools. Python, Keras

Supervisor name: **Assoc. Prof. Dr. Sri Devi (sdevi@um.edu.my)**

Research Title: Agent-based simulation for humanitarian aide

Brief Description: The objective is to develop new tools and techniques of agent-based simulation applied to the fields of information visualization, especially within the humanitarian aid context. The plan is to progressively push the boundaries of agent-based simulation in unique and challenging situations where numerous applications nevertheless require sufficiently detailed and highly performant model for humanitarian support activities.

Tools. Java, Anylogic PLE