PROJECT x: EXTENDING EYE TRACKING MOODLE SYSTEM TO MOTIVATIONAL PERSONALISED LEARNING SYSTEM

# Project Outline

Students’ high level of **motivation** to learn is associated with their learning success. User motivation is a response to the interaction process and is fundamental for the success of the interaction process. Recognition of the role of identified motivational factors can contribute to an assessment of the interface and can be an indicator of how well design has addressed user needs and requirements. That’s why we need to recognise and use techniques to enhance user motivation in the interaction process, in order to attract and sustain the interest of the target audience.

Specifically, students with various kinds of learning difficulties such as dyslexia can cause young people not to engage fully with the education system or drop out. Thanks to the advancement of assistive learning system and user modelling techniques for personalised learning, the different individual learning needs and preferences can be taken into account and met by personalising the learning environment based on user models.

One of our DMU students has already developed an eye tracking learning system with course materials based on Moodle learning platform. View a quick demonstration video here: http://xxxxxxxxxxx. The system can continually monitor learners’ eye gaze when they are using the system and monitor learner behaviour such as clicking history and navigation behaviour for personalisation purpose as well as record learning task performance including self-assessment score, learning completion time, etc. However, the motivational factors that are essential to learning success are not included in the system yet. By incorporating motivational factors into student modelling in the system, personalisation can be further applied based on student motivation model.

# Project Objectives

The objectives are to extend the current eye tracking Moodle system that involves:

* Identifying user’s motivation at the beginning and in real-time.
* Record and store user’s real-time data including eye movement and learning task performance (i.e., time spent on a page, time spent on a test, test score, etc.).
* Update the motivational state with the aforementioned real-time data.
* Provide personalised feedback and course quantity based on the real-time motivational state.

# Prerequisite

Basic programming skills in Java/C/Python.

Some experience of developing e-learning system will be beneficial.

Technical Requirements: YELLOW (Traffic light indicator)

# Expected Deliverables

A system prototype with documentations and dissertation report covering following aspects:

* Incorporating a motivation questionnaire (developed already) in the registration form.
* Recognising user attention by collecting eye-tracking data using given analysis method.
* Updating the motivational state with eye-tracking data and other recorded indicators such as browsing time using pre-defined rules.
* Providing personalised feedback (facial expression + message) based on motivation by applying pre-defined inference rules.
* Identify different levels of course quantity and provide the personalised course quantity based on motivation by applying pre-defined inference rules.

# Supervisor – Prof Liming Chen/ Ruijie Wang

|  |  |
| --- | --- |
| Professor of Computer Science  GH 5.34 - The Gateway  De Montfort University  LE1 9BH  T: +44 (0) 116 207 8490  E: liming.chen@dmu.ac.uk  W: www.tech.dmu.ac.uk/~limingchen/ | Ruijie Wang (PhD Student at CIIRG)  GH 6.19 - Gateway House  De Montfort University  LE1 9BH  E: p1523357x@my365.dmu.ac.uk |

**Ruijie will provide:**

**Pre-define weight of motivational factors;**

**Which indicators of which motivational factors need be collected;**

**Inference rules(input: motivation; output: Levels of course quantity; Feedback expressions and messages);**

**Levels of course quantity;**

**Feedback expressions and messages**