

## Topic #2:

Title:

### **Cognitive Science Models for Human Behavior Detection and Thinking Ability Enhancement**

#### **Topic overview**

This talk demonstrates how pedagogical theories, cognitive and other relevant scientific disciplines contribute to the design and production of a compact device that is equipped with the necessary data acquisition systems and software tools and is able to detect human behaviour, evaluate and enhance human thinking levels and abilities to help increase the innovation capacity of education and industry.

This research is addressing intelligent computational environments for stimulating and enhancing human creativity process. This is a multi-disciplinary research including computational creativity, brain-based research, cognitive and learning sciences, and human computer interface (HCI). This work will establish theories and models for hybrid (human-computer) systems to be demonstrated by fully functional prototypes of computational environments, incorporating progress in relevant areas such as AI, psychology, sociology, neuroscience and cognitive science.

The proposed project will demonstrate how the theoretical insights gained in this project that are based on latest advances in pedagogical, cognition and other relevant scientific disciplines, and it will contribute to the development of; a national standard *human creativity (cognitive) and higher order thinking skills assessment tests* using cognitive and learning sciences, a human brain and mental simulation model, a human cognitive, Generic Abstract Intelligence (GAI) and innovation simulation models that provide a foundation to explain the mechanisms of advanced natural intelligence such as thinking, learning, and inferences. *Cognitive models of teaching strategies and learning styles* will be provided and tested against actual sample sets that record inputs, behaviour and assess outcomes, development of set of mind games that well fit in the formally described decision *process* and will be used for *enhancing the personnel thinking, finally, development of innovation abilities and solutions for teaching* national curricular topic(s) in primary and/or secondary education using gamification and human computer interface (HCI) sciences.