# Remembering Who We Are – Human Memory for Artificial Agents Symposium

A one-day symposium at AISB 2010 (29th March – 1st April 2010).
http://www.macs.hw.ac.uk/~myl/AISBRWWA.html

**PROGRAMME CHAIRS**

Dr Mei Yii Lim, Heriot-Watt University, UK
Dr Wan Ching Ho, University of Hertfordshire, UK

**INTRODUCTION**

Memory gives us identity, shapes our personality and drives our reactions to different situations in life. We actively create expectations, track the fulfilment of these expectations and dynamically modify our memory when new experiences demand it. Yet up to date, many important social aspects of human memory (for instance, emotional memory and episodic memory) to artificial intelligent agents have not been given much attention. The challenge might lie in the amount of memories one can have in a life time. Take a narrative agent for example, how can we generate a lifetime's worth of memories for this agent? Can we easily record human experiences for this purpose? What trust and privacy issues will this entail? On the other hand, without this type of memory, can the agent generate believable life stories given that it is what colors our lives in retrospect? For an agent that continuously interacts with users or other agents, how can we design it with the capability to generate memories worth remembering in its lifetime? How can the agent record experiences of others during interaction? Can the agent maintain its relationship with others without any information about its past experiences with them?

Artificial agent researchers have been constantly coming up with computational cognitive models inspired by the human brain to create characters that are more natural, believable and behave in human plausible ways. However, memory components in these models are usually oversimplified. Memory components which have been widely accepted and modelled are the long-term memory including procedural and declarative memories, the short-term memory and the sensory memory. What about the more 'socially-aware' memory which allows us to be effectively involved in social interactions and which fundamentally supports the creation of our life stories including the significance of events and their emotional impact? It is important to review artificial agents without this kind of memory particularly those designed for social interactions, and reflect on the effects of this shortcoming.

Additionally, many existing models do not take into consideration the bio-mechanisms of human memory operations such as those involved in retrieval and forgetting processes. The most commonly adopted approach to forgetting is decay but the human brain performs other processes such as generalisation, reconstruction and repression to list a few.

This symposium offers an opportunity for interdisciplinary discussions on human-like memory for artificial agents including organisational structures and mechanisms. We hope to bring together memory researchers, psychologists, computer scientists and neurologists to discuss issues on memory modelling, memory data collection and application to achieve a better understanding of which, when and how human-like memory can contribute to artificial agents modelling.

**Topics of interest include but are not limited to:**

- Role of memory in artificial agents
- Type of memory and application
- Memory and emotion modelling
- Human-agent/human-robot interaction history
- Effective memory data collection
- Privacy issues related to data collection
- Bio-inspiration to memory modelling
- Memory mechanisms for encoding, storage and retrieval
- Memory influence on reasoning and decision-making
- Modelling forgetting in episodic memory
- Ethological aspects of memory
- Spatial memory

**Program Committee**

Cyril Brom, Charles University Prague
Sibylle Enz, University of Bamberg
Stan Franklin, The University of Memphis
Wan Ching Ho, University of Hertfordshire (co-chair)
Mei Yii Lim, Heriot-Watt University (co-chair)
Andrew Nuxoll, University of Portland
Alexei Samsonovich, George Mason University
Holger Schultheis, University of Bremen
Dan Tecuci, University of Texas