

Forgetting in Working an Episodic Memory

Remembering what happened in the past is one key element of intelligence. We as humans make massive use of multi-modal temporal experiences when being faced with new situations or when deciding how to behave in a certain situation. Most robots however do not have such an episodic memory. For this reason, we are developing a new memory component, which collects and stores episodes from the robots perception and inner cognitive processes. However, recording a very long sequence – or even a lifetime – of experiences would require a lot of space which is why evolution developed “forgetting”, the key element to free space in our brain and to filter the high amount of data upon consolidation.



The humanoid robot ARMAR-6 removing episodes from his mind

The focus of this work is to implement a forgetting mechanism for our newly developed episodic memory based on e.g. amount of accesses or distinctness of episodes.

In this project, you will improve our existing ArmarX memory structure with mechanisms filtering the datastream from working memory to long-term memory and with a garbage collection, removing unused, unnecessary or already existing memories from the robots episodic memory.

Knowledge in C++ is required for this work. Knowledge in Machine-Learning tools (such as Tensorflow) will be helpful but is not required.

- ArmarX (C++): armarx.humanoids.kit.edu

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