Embodied Conversational Agents (ECA) form part of a range of virtual characters whose intended purpose include engaging in natural conversations with human users. While works in literature are ripe with descriptions of attempts at producing viable ECA architectures, few authors have addressed the role of episodic memory models in conversational agents. This form of memory, which provides a sense of autobiographic record-keeping in humans, has only recently been peripherally integrated into dialog management tools for ECAs. In our work, we propose to take a closer look at the shared characteristics of episodic memory models in recent examples from the field. Additionally, we propose several enhancements to these existing models through a unified episodic memory model for ECA's. As part of our research into episodic memory models, we present a process for determining the prevalent contexts in the conversations obtained from the aforementioned interactions. The process presented demonstrates the use of statistical and machine learning services, as well as Natural Language Processing techniques to extract relevant snippets from conversations. Finally, mechanisms to store, retrieve, and recall episodes from previous conversations are discussed. A primary contribution of this research is in the context of contemporary memory models for conversational agents and cognitive architectures. To the best of our knowledge, this is the first attempt at providing a comparative summary of existing works. As implementations of ECAs become more complex and encompass more realistic conversation engines, we expect that episodic memory models will continue to evolve and further enhance the naturalness of conversations.

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The public is welcome to attend.