Lifelong learning is a machine learning approach that deals with learning sequential tasks over time. It seeks to transfer knowledge from previous learning tasks to new learning tasks in order to increase generalization performance and learning speed when new learning tasks are learned. Lifelong learning is most appropriate in real-time learning environments in which many agents are participating but they are spread out in time and space outside of the geographical scope of a single learning agent. This research seeks to provide an algorithm that is appropriate and functional in life long learning scenarios related to a network of agents in a sparse real-time learning environment. This work utilizes the robust knowledge representation of neural networks, and makes use of both functional and representational knowledge transfer to accomplish the aforementioned research goal. More specifically, a new generative life long learning algorithm utilizing cascade correlation and reverberating pseudo-rehearsal and incorporating a method for merging divergent life long learning paths is implemented and experimented with.

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The public is welcome to attend.