## Control HVAC Parameters by Brain Emotional Learning Based Intelligent Controller (BELBIC)

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**Abstract :** Modeling emotions have attracted much attention in recent years, both in cognitive psychology and design of artificial systems. However, it is a negative factor in decision-making; emotions have shown to be a strong faculty for making fast satisfying decisions. In this paper, we have adapted a computational model based on the limbic system in the mammalian brain for control engineering applications. Learning in this model based on Temporal Difference (TD) Learning, we applied the proposed controller (termed BELBIC) for a simple model of a submarine. The model was supposed to reach the desired depth underwater. Our results demonstrate excellent control action, disturbance handling, and system parameter robustness for TDBELBIC. The proposal method, regarding the present conditions, the system action in the part and the controlling aims, can control the system in a way that these objectives are attained in the least amount of time and the best way.

**Keywords :** artificial neural networks, temporal difference, brain emotional learning based intelligent controller, heatingventilating and air conditioning

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