



## **INTRODUCING BELBIC: BRAIN EMOTIONAL LEARNING BASED INTELLIGENT CONTROLLER**

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**ABSTRACT**—Modeling emotions has attracted much attention in recent years, both in cognitive psychology and design of artificial systems. Far from being a negative factor in decision making, emotions have shown to be a strong faculty for making fast satisficing decisions. In this paper, we have adapted a computational model based on the limbic system in the mammalian brain for control engineering applications. We applied the proposed controller (termed BELBIC) for some SISO, MIMO and nonlinear systems. Our results demonstrate excellent control action, disturbance handling and system parameter robustness for BELBIC.

**Key Words:** Reinforcement, Emotion, Satisficing, Control, Robust, Learning, Cognitive, Behavioral