

Adaptive Neural Architectures for Dynamic Environments

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Abstract

This study explores the development of adaptive neural architectures that can dynamically modify their structure in response to changing environmental conditions. The proposed model enhances decision-making in real-time scenarios by integrating reinforcement learning with self-organization principles. Experimental results demonstrate a significant increase in efficiency and accuracy compared to static neural networks in tasks such as robotics navigation and autonomous vehicle control. This research opens new avenues for AI applications in unpredictable environments.

Keywords: Adaptive neural networks, reinforcement learning, self-organization, robotics, autonomous vehicles.