IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.53
Volume 4, Issue 2, October 2024

Advanced Methods for Verifying Memory Controllers in Modern Computing Systems

Hiranmaye Sarpana Chandu
Independent Researcher
chanduhiranmaye9@gmail.com

Abstract: *The primary component of the computer system that requires enhancement is the memory's performance. A memory controller helps in the management of control between the memory as well as the processor. This study gives a general outline of how controller performance in systems based on power converters may be improved using AI approaches. Among the many uses for power converters in today's electrical and energy systems are the effective control and conversion of energy in electric cars, renewable energy sources, and industrial automation, among others. Complementary control strategies used in classical approaches, although work well, may experience difficulties when it comes to system complication, change, and unpredictability. To overcome these restrictions, artificial intelligence methods appear rather prospective. Among the AI types one can distinguish neural networks, fuzzy logic, machine learning that may help to control the converters with enhanced efficiency by using adaptive and intelligent control. These approaches enhance control precision, succession, and reaction time to enhance system effectiveness and dependability. Moreover, this integration of AI enhances the most power converters by making it easier to predict maintenance, detect faults, and optimise for energy hence enhancing the systems. The paper presents new trends in the advanced smart control of the power converters, total control techniques, advantages as well as the challenges posed by AI control strategies. It also describes future trends and research areas for achieving enhanced performance in power converter-based systems through AI and Control techniques.*

Keywords: Artificial intelligence, SRAM, DRAM, Memory controller, GPU, Verification Environment

DOI: 10.48175/IJARSCT-19862