

ABSTRACT

Garbage collection is performed according to an estimated number of valid pages. A storage device estimates a valid page count at a future time based on a valid page count at each of past time steps and a present time step using a neural network model and selects a victim block that undergoes the garbage collection from memory blocks based on an estimated valid page count. A memory block having a lowest estimated valid page count or having an estimated valid page count having a maintaining tendency is selected as the victim block or a memory block having the estimated valid page count having a decreasing tendency is excluded from selecting the victim block.

FIG. 12