

CONCEPT With Machine Code (MC) the programmer creates fixed responses to the environment with maybe some random variation, however with Machine Learning (ML) the programmer creates a system that can improve its responses to the environment through training or interaction.

Typically these systems work together. The MC system does the actual machine control in a reliable, predictable way that is relatively easy to maintain and troubleshoot. The ML system is used to review the machine and environmental data and help operators manage the threshold values to make the machine run most efficiently.

BACKGROUND

Control systems based on MC were used initially starting with mechanical linkages or electrical relays and moving to computer control using if-then-else logic. A person would manage the system and adjust the threshold values, like how long the walk light stayed on for people to cross a street. To improve the control, ML systems can monitor numerous inputs and adjust threshold values to improve system response. If people tend to walk slower at certain intersections, the system can lengthen the time the walk signal is on.

COMPARISON: comparing two values for greater than, less than, or equal to

CONDITIONAL (IF-THEN-ELSE): select one or two alternatives based on a comparison

THRESHOLD VALUE: a comparison value where a conditional selects an alternative

