Member Communication Experience

As the world increasingly embraces technological
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to steer the program into providing more accurate results.

but it can be left undetected until symptoms, such as high humidity or utility costs, appear. Instead of scouring trend logs to identify short cycling, which could take hours or days, machine learning can be utilized. To identify short cycling, you would input data consisting of trend logs from a building management system (BMS) with specific trends noted as short cycling. This model would then be tested with separate evaluation data to determine if short cycling can be actively identified. Once a model is trained correctly, it should then be able to identify short cycling across a facility campus by sifting through hundreds of thousands of trend logs requiring little to no human interface.

PRO: PREDICTIVE MAINTENANCE

Implementing AI and machine learning can allow you to perform predictive maintenance. Once trained, a machine learning model can identify risk factors that could lead to equipment failures. Once these risk factors are identified, the model can notify facility staff of a potential failure that can subsequently be addressed before failure occurs.

PRO: ENERGY OPTIMIZATION

One subset of machine learning called "unsupervised machine learning" looks for patterns in data without being programmed. For example, in building operations, such modeling can help identify occupants who adjust their thermostats at the same time every day and anticipate the change to cool or heat units more efficiently. Additionally, models can be programmed to account for weather data and proactively adjust heating and cooling. No human could account for all the complex relationships between the weather and building operations, but a machine-learning model can develop sequences that anticipate and accommodate a wide range of weather conditions.

CON: LACK OF HUMAN INTERFACE

AI can automate many tasks and activities, but this does not mean facility operators and maintenance staff can become complacent or replaceable. These models are data-driven and require large amounts of data to be properly trained. Data and modeling risks can also lead to AI models occasionally drawing the wrong conclusions from the data they are fed. It is important for the humans responding to the data to

understand how the models work and how accurate they are. AI models are not infallible. Typically, a model will perform to about 95% human accuracy. While AI can detect and identify potential issues and faults, acting on AI-driven decisions still requires proficiently trained human staff capable of performing the recommended maintenance work.

CON (AND PRO): IMPLEMENTATION COSTS

Initial projects implementing machine learning and AI may incur substantial upfront costs, as training models require significant data, time, and knowledgeable programmers. However, as machine learning models change, few any

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