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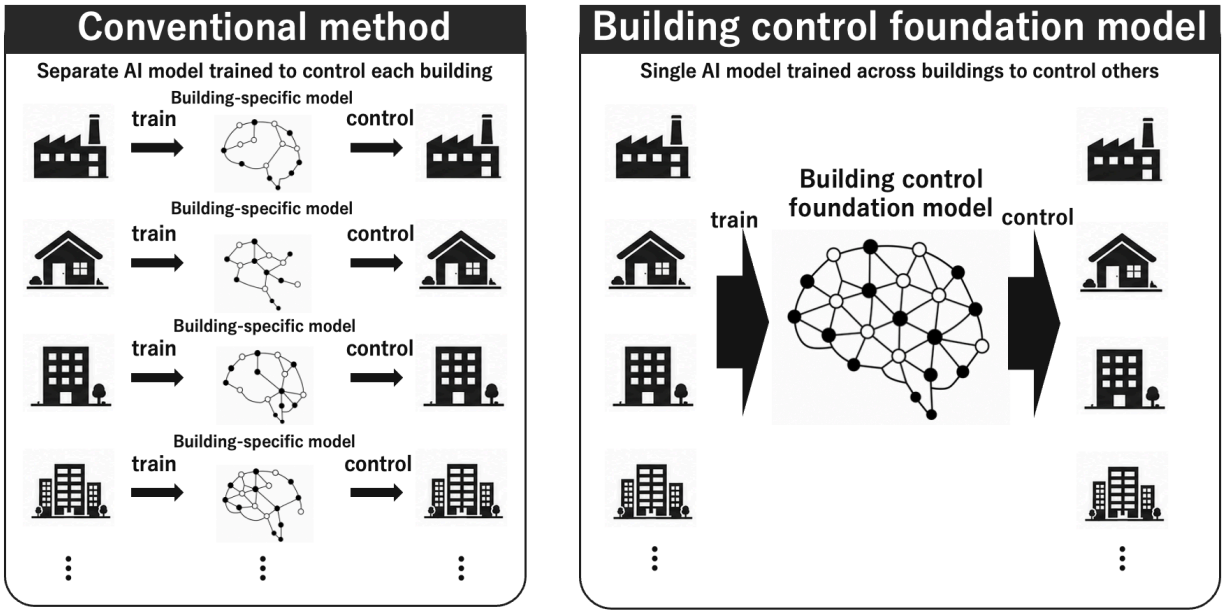
PRESS RELEASE

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Kajima and Collaborators' Challenge on AI HVAC Control Without Building-Specific Tuning Accepted for the NeurIPS 2026 Competition Track

A proposal for an AI-based building HVAC control challenge jointly submitted by Kajima Corporation ("Kajima"; President: Masafumi Kiryu) and researchers affiliated with universities, research institutions, and companies in the United States and Canada to the NeurIPS[*1] 2026 Competition Track[*2] has been accepted.[*3] NeurIPS is one of the world's premier conferences in artificial intelligence and machine learning. The challenge, entitled "The Smart Buildings Challenge: Learning Foundation Models for Real-World Optimization at Scale,"[*4] aims to develop AI models for HVAC control that require no building-specific tuning, regardless of building size or HVAC system configuration. Following its acceptance, an AI competition (the "Competition") in which participants compete based on the performance of their solutions to the challenge will be jointly organized by Kajima and its collaborators, inviting researchers and engineers from around the world to submit state-of-the-art AI models.



Conceptual comparison of conventional AI-based HVAC control (left)
and the approach pursued in this Competition (right)

The Competition follows a similar one[*5], held at the ICML Workshop on Computational Optimization of Buildings last year, in which Kajima participated and placed third. This time, Kajima will serve as a member of the organizing team and jointly plan and run the Competition with researchers affiliated with Columbia University (United States), Harvard University (United States), Princeton University (United States), Syracuse University (United States), the University of Washington (United States), Mila (Quebec Artificial Intelligence Institute, Canada), Google (United States), and Distyl AI (United States).

By bringing challenges facing the built environment sector to the global AI research community, Kajima aims to bring together the expertise of researchers and engineers from diverse fields and foster new research approaches and solutions. Through this open innovation initiative, Kajima will accelerate the development and advancement of AI-based HVAC control technologies. Kajima also plans to test models selected through the Competition in real buildings, including The GEAR, Kajima's global research and development hub in Singapore, to evaluate their effectiveness in real-world applications.

In recent years, interest in smart buildings has grown as a means of reducing environmental impact, improving occupant comfort and convenience, and enhancing the efficiency of building operations and management. HVAC control that reduces energy consumption and CO_2 emissions while maintaining occupant comfort is one of the key challenges facing the built environment sector. Research and development of AI-based HVAC control technologies has also advanced. However, many existing approaches require AI models to be developed and tuned separately for each building, making it difficult to deploy these technologies across a wide variety of buildings.

To address this challenge, the Competition aims to develop a single AI model for HVAC control that can be applied across diverse buildings regardless of building size or HVAC system configuration, rather than requiring a separate model for each building. This model is referred to as a "building control foundation model"*6.

Participants in the Competition will develop building control foundation models using simulation environments representing multiple buildings. These models will then be applied to multiple unseen virtual buildings that differ in size, floor plan, weather conditions, and HVAC system configuration. The models will be compared and evaluated under the same conditions based on their ability to maintain occupant comfort while reducing energy consumption and CO_2 emissions. Following the Competition, the selected models will be tested in multiple real buildings to evaluate their effectiveness with a view toward practical implementation.

*1 NeurIPS: Conference on Neural Information Processing Systems.

*2 Competition Track: A competition track in which challenge proposals submitted by researchers from around the world are reviewed by NeurIPS. For challenges selected as important research problems in artificial intelligence and machine learning, participants compete to develop solutions under common evaluation criteria.

*3 NeurIPS announcement dated July 28, 2026: https://blog.neurips.cc/2026/07/28/neurips-2026-competitions-announced/

*4 The Smart Buildings Challenge: https://smart-buildings-2026.github.io/competition/index.html

*5 The International Conference on Machine Learning, Workshop on Computational Optimization of Buildings, Smart Buildings Challenge: https://sites.uw.edu/co-build/common-task-framework-challenge/

*6 Foundation model: A large-scale model trained on large and diverse datasets that can be adapted to a variety of tasks.