











An AI-Powered Application for Temperature Control

X-Air is an AI powered, state-of-the-art, software application to control indoor space temperature and air quality. Using cutting edge technology in reinforcement learning, it aims to optimize energy efficiency and minimize greenhouse gas emission for buildings, while maintaining a healthy and comfortable environment. With reinforcement learning algorithms, it has the potential to learn the unique energy characteristics of each individual building, and generate a customized optimal control policy for the building. It can use real-time weather forecasts to further improve the performance. Using EnergyPlus, it simulates a building's energy consumption and establishes a common baseline to quantitatively evaluate different control

solutions. By allowing the users to specify a valid range for control, it ensures operational safety.

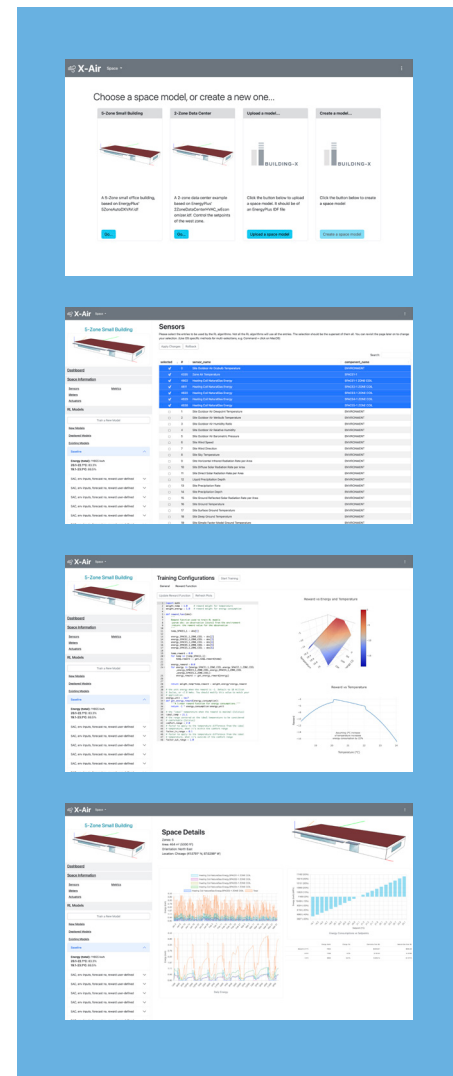
X-Air comes with a friendly user interface running on web browsers, significantly lowering the barrier to access AI technologies for the users. It can be delivered in Docker images, and installed and run on computers with common operating systems. Installation takes just minutes. It can be deployed on-premises and in the cloud, making it easily accessible for both the users and the control systems. It uses an I/O portal to connect a trained AI model to physical points using BACnet protocol, and can be easily integrated to many existing building management systems and add value.

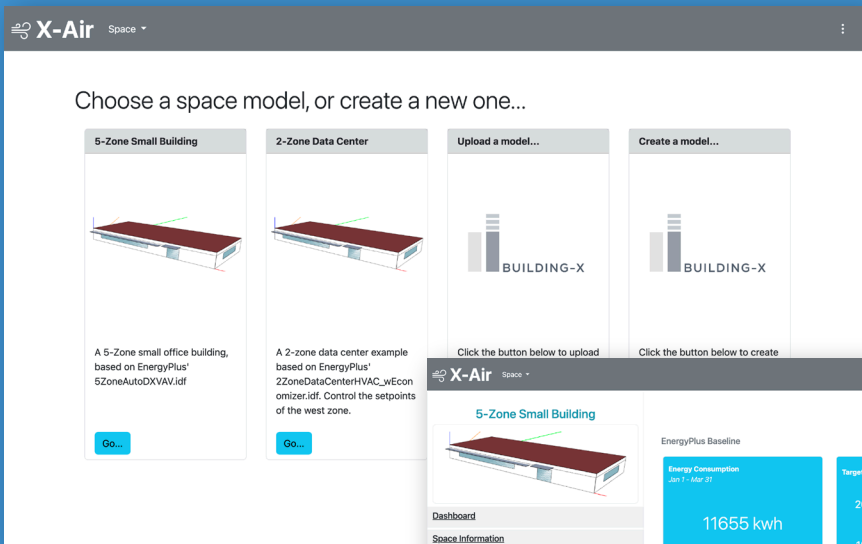
Features:

-  **Use reinforcement learning algorithms** for space temperature and air quality control, aiming to optimize energy efficiency and human comfort.
-  Has the potential to learn individual building's energy characteristics and **generate customized optimal control policy**.
-  **Ensure operational safety** by allowing users to specify a valid range for control.
-  Use EnergyPlus to simulate a building's energy consumption and **establish a common baseline** to quantitatively evaluate different control solutions.
-  **Use real-time weather forecasts** to further improve energy efficiency.
-  **Web-browser based UI** for users to configure, train, monitor, and deploy AI models.
-  **Connect** to physical points using **BACnet protocol**.
-  Can be **easily integrated** with many **existing BMS** (building management systems).
-  **Easy installation using Docker** image and run on most computers.
-  Can be deployed **in cloud** and **on-premises**.

<https://www.building-x.ai/x-air.html>

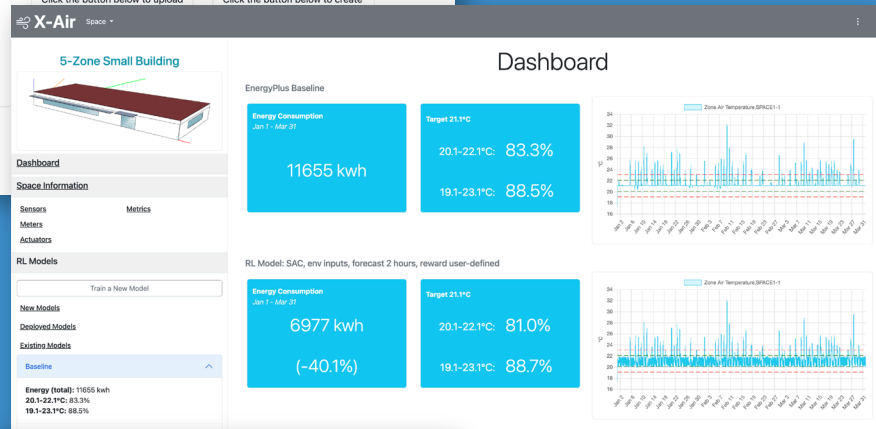
info@building-x.ai



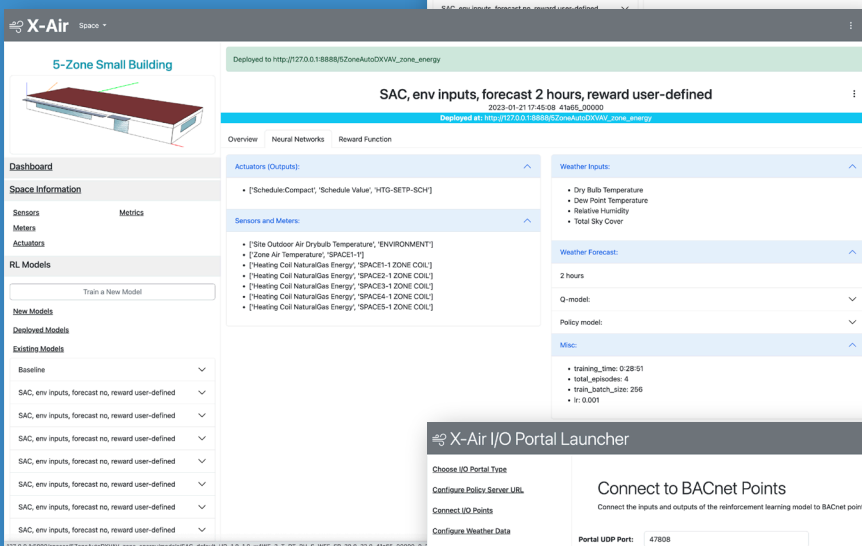


Space Models

Dashboard



Model Deployment



I/O Portal

X-Air I/O Portal Launcher

Choose I/O Portal Type

Configure Policy Server URL

Connect I/O Points

Configure Weather Data

Miscellaneous

Review and Launch

Connect to BACnet Points

Connect the inputs and outputs of the reinforcement learning model to BACnet points.

Portal UDP Port: 47808

Specify the UDP port for the I/O portal to use as a BACnet client. Make sure this port is available. If you are running the portal in a Docker container, please also make sure the port, and the physical device's BACnet ports, are published when run in the Docker container.

Inputs

Name	Device Address	Object Type, Instance Number	Property	Index
["Site Outdoor Air Drybulb Temperature", "ENVIRONMENT"]	192.168.0.149:47809	analogValue 42	present	-1
["Zone Air Temperature", "SPACE1-1"]	192.168.0.149:47809	analogValue 43	present	-1
["Heating Coil NaturalGas Energy", "SPACE1-1 ZONE COIL"]	192.168.0.149:47809	analogValue 44	present	-1
["Heating Coil NaturalGas Energy", "SPACE2-1 ZONE COIL"]	192.168.0.149:47809	analogValue 45	present	-1
["Heating Coil NaturalGas Energy", "SPACE3-1 ZONE COIL"]	192.168.0.149:47809	analogValue 46	present	-1
["Heating Coil NaturalGas Energy", "SPACE4-1 ZONE COIL"]	192.168.0.149:47809	analogValue 47	present	-1
["Heating Coil NaturalGas Energy", "SPACE5-1 ZONE COIL"]	192.168.0.149:47809	analogValue 48	present	-1

Outputs

Name	Device Address	Object Type, Instance Number	Property	Index	Priority
["Schedule Compact", "Schedule Value", "HTG-SETP-SCH"]	192.168.0.149:47809	analogValue 50	present	-1	0

<< Configure Policy Server URL

Configure Weather Data >>