MathWorks® Hackathon

Predicting Building Energy Consumption Challenge

Instructions for Getting Started

This guide has detailed steps to help your team use MATLAB® to start developing machine learning algorithms. We have also included a simple example that you can use to start with or draw inspiration from as you create your own solution to this challenge.

Good luck!

Table of Contents

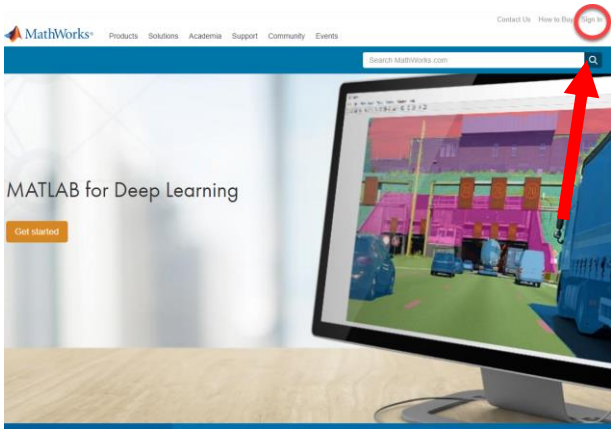
Getting Started

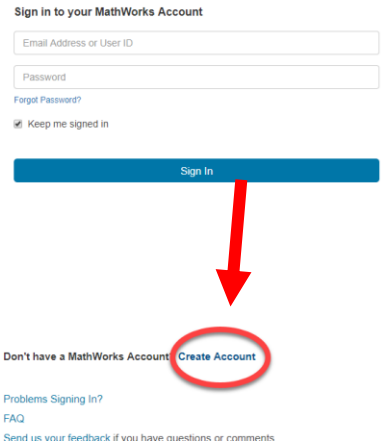
Challenge Statement

This hackathon challenges participants to develop a machine learning model that predicts building energy consumption based on factors like weather, building characteristics, and more. With buildings being major contributors to global energy use and carbon emissions, accurate predictions could enable organizations to implement targeted strategies to reduce energy waste, such as retrofitting high-use buildings to be more energy efficient. This challenge offers participants the chance to see what it's like to work with a real dataset on a current global issue while enhancing their technical skills.

Getting Started with MATLAB

1. Create a MathWorks account
    - Go to https://www.mathworks.com/
    - Click 'Sign In' in the upper right corner of the page
    - Click 'Create Account '
    - Fill out page and then press 'Create'





2. Access MATLAB Online
    - Go to https://matlab.mathworks.com/
    - Log in Using MathWorks account

Resources

The MathWorks 'Awesome MATLAB Hackathons' GitHub repository has a plethora of getting started resources for a variety of topics. If you're not sure where to start or feeling stuck, check it out to see if there's a resource for you!

https://github.com/mathworks/awesome-matlab-hackathons

Example Model:

As part of the documents provided for this competition, we have provided a very basic example that can be used as reference when developing your own solutions. This can be found in the MATLAB Live Script called 'Building Regression Models.mlx' which explains each step of the process. This should be used as a starting point. You are responsible for deciding each step of the process, such as:

- How you process your data
- How you split the data for training, test, and validation, if at all
- How you train your models, and which type(s) of models you wish to train

Submitting your Results

Once you have finished your model, you will have to create a submission for your team. This submission should include a 5-minute presentation of some kind, whether that's a video, slide deck, write up, or other medium of your choosing, and a link to your code. The code should be accessible through some kind of public repository, such as GitHub or Google Drive.

Teams are encouraged to be creative when demonstrating their efforts and follow the grading rubric available in the provided documents when developing their submission. Further instructions on how to deliver the submission will be shared with teams at the event.